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THESIS

ASSESSING THE PROGRAM HEALTH AND CUSTOMER SATISFACTION OF A PROJECT MANGEMENT OFFICE: AN AUTOMATED SOLUTION

by

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Efficiency in the acquisition of major defense systems is of paramount importance, given today's environment of declining resources. To achieve this efficiency, the project office, as the responsible agency for such acquisitions, must perform its designated functions both efficiently and effectively. The two most important indicators reflecting the efficiency and effectiveness of the project office are program health and customer satisfaction. The objective of this research was to develop an automated self-assessment instrument for use by the military project manager to measure the program health and customer satisfaction of his/her organization. This thesis provides the project manager with a viable model depicting the critical organizational design factors impacting the program health and internal customer satisfaction of the military project office. This study also provides the project manager a pilot implementing instrument with which to assess the program health and internal customer satisfaction of his/her organization. Finally, this research effort has produced an independent software application, specifically designed to automate the self-assessment process within a military project management office.

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ASSESSING THE PROGRAM HEALTH AND CUSTOMER SATISFACTION OF A PROJECT MANAGEMENT OFFICE: AN AUTOMATED SOLUTION.

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Submitted in partial fulfillment
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ABSTRACT

Efficiency in the acquisition of major defense systems is of paramount importance, given today's environment of declining resources. To achieve this efficiency, the project office, as the responsible agency for such acquisitions, must perform its designated functions both efficiently and effectively. The two most important indicators reflecting the efficiency and effectiveness of the project office are program health and customer satisfaction. The objective of this research was to develop an automated self-assessment instrument for use by the military project manager to measure the program health and customer satisfaction of his/her organization. This thesis provides the project manager with a viable model depicting the critical organizational design factors impacting the program health and internal customer satisfaction of the military project office. This study also provides the project manager a pilot implementing instrument with which to assess the program health and internal customer satisfaction of his/her organization. Finally, this research effort has produced an independent software application, specifically designed to automate the self-assessment process within a military project management office.

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I. INTRODUCTION

A. PURPOSE

The purpose of this thesis is to develop a unit self-assessment model and a software-based survey instrument to effectively measure the program health and customer satisfaction of a military project management office.

B. BACKGROUND

In July 1994, the Program Executive Office (PEO), Tactical Missiles, U.S. Army Material Command (AMC) directed all project managers within the PEO to conduct a unit self-assessment using the Self-assessment Guide for Organizational Performance and Customer Satisfaction, based on the Presidential Quality Award criteria. After conducting these assessments, two of the Project Managers (PMs), PM Close Combat Anti-armor Weapon Systems (CCAWS) and PM Air-to-Ground Missile Systems (AGMS), conducted internal reviews of the Presidential Award process and criteria and their effectiveness in measuring the critical factors which determine the overall health of a project office and the level of its customers' satisfaction. These independent reviews suggested that the Presidential Award criteria and its implementing instrument, the Self-assessment Guide for Organizational Performance and Customer Satisfaction, were inappropriate to accurately assess and track the level of program health and customer satisfaction within a project management office.

Based on these findings, the CCAWS and AGMS Project Managers requested that the Naval Postgraduate School develop an alternative assessment instrument that will effectively

assess the factors which directly contribute to the program health and customer satisfaction of a project management office.

C. THESIS OBJECTIVES

The objectives of this thesis are to develop:

1. A unit assessment model and a pilot survey instrument that are appropriate and effective for measuring the program health and customer satisfaction of a project management office.

2. An automated, network-based user interface, data storage, analysis, and presentation application that simplifies the unit self-assessment process.

D. ASSUMPTIONS

This researcher made the following assumptions concerning this research effort:

1. The Self-assessment Guide for Organizational Performance and Customer Satisfaction is an inappropriate instrument to measure the program health and customer satisfaction within a project management office, for the reasons identified by the sponsoring organizations.

2. The assessment instrument developed as an alternative to the Self-assessment Guide for Organizational Performance and Customer Satisfaction is only intended for use in a military project management office.

3. The factors contributing to program health and customer satisfaction are consistent across project management offices.

4. The sponsoring organizations do not intend to significantly modify their computer operating systems within the next five year period.

E. RESEARCH QUESTIONS

1. Primary

Does the proposed unit self-assessment package satisfy the sponsors' requirement to efficiently and effectively assess and track program health and customer satisfaction?

2. Subsidiary

a. Does the proposed assessment address and correct the deficiencies of the Self-assessment Guide for Organizational Performance and Customer Satisfaction, identified by the sponsors' management teams and users?

(1) Are the assessment items applicable to a project management office?

(2) Is the wording or content of the assessment items confusing to the intended users?

(3) Is the assessment too long and time consuming?

(4) Are the assessment items appropriate to solicit responses from all personnel within the project office?

(5) Does the assessment solicit both quantitative and qualitative feedback?

b. Is the proposed software application an effective method to administer the recommended assessment?

(1) Is the software application compatible with the existing computer resources used by the CCAWS and AGMS project management offices?

(2) Is the software user friendly?

(3) Is the software application accessible to its intended users?

(4) Does the software enhance the overall conduct of the proposed assessment?

(5) Does the software simplify the user's ability to provide quantitative and qualitative feedback?

(6) Does the software simplify the facilitator's ability to collect, compile, analyze, and present generated feedback?

c. Does the proposed unit self-assessment package provide project managers with the information and tools necessary to monitor and improve program health and customer satisfaction?

(1) Is the package capable of compiling and analyzing data generated from responses in a manner that provides useful feedback?

(2) Are the types and depth of analyses included in the package sufficient to meet the managers' requirements?

(3) Is the package capable of presenting the results of generated feedback and analyses in a clear and useful manner?

(4) Is the package capable of storing information, for the purpose of comparison, for a period of not less than five (5) years?

(5) Does the package provide project managers with the tools necessary to monitor the improvement of identified weaknesses?

F. ORGANIZATION OF THESIS

Chapter II of this study details the methodology employed by this researcher. It begins by documenting efforts to identify an appropriate candidate assessment instrument. It then describes the software design techniques used in the prototype software development. The chapter concludes with a

description of the quantitative methods used to evaluate the candidate unit self-assessment and the prototype software application.

Chapter III provides background information on the military project management office. It begins with a description of the military project management environment. The chapter continues with a discussion of the major functional areas common to most project management offices. This chapter concludes by introducing the CCAWS and AGMS project offices, the sponsors' of this thesis.

Chapter IV addresses the assessment instrument. This chapter begins with a discussion of the theory and general framework underlying the development and implementation of assessment instruments. The chapter then presents a theoretical model of organizational dynamics developed by the Harvard School of Business. This model is used as the basis to compare the organizational models that support the assessment instruments addressed in this study. Next, the chapter describes and evaluates the two models and assessment instruments considered in this study. Discussed first is the Presidential Award Model and the Self-assessment Guide for Organizational Performance and Customer Satisfaction, used by the CCAWS and AGMS Project management Offices in July 1994. This is followed by a discussion of the Strategic Leadership Planning Model and its assessment instrument, the United States Army, Europe (USAREUR) Organizational Diagnostic Survey. This model and assessment instrument were selected by this researcher as suitable alternatives to the Presidential Award Model and Self-assessment Guide for Organizational Performance and Customer Satisfaction. Also addressed are modifications to the original USAREUR Organizational Diagnostic Survey prior to its evaluation.

Chapter V focuses on the automation of the self-assessment process. It begins with a description and evaluation of the Continuous Improvement (CI) Toolkit for Windows, a commercial software package initially selected by this researcher as a solution to automate the self-assessment process. Next, the chapter describes the development of an independent prototype software program to serve as the user interface for the collection of assessment data. The chapter concludes with a description of the database storage, analysis, and presentation applications designed using Microsoft Access.

Chapter VI begins by presenting the data and qualitative responses accumulated about the candidate unit self-assessment, assessment items, and the proposed software application acquired during the prototype testing. The chapter then presents an analysis and discussion of the issues related to the Strategic Leadership Planning Model, the candidate self-assessment instrument, and the assessment items identified during the assessment evaluation. This chapter concludes with an analysis of the prototype assessment software application and a discussion of anomalies discovered in the software during the prototype testing.

Chapter VII presents conclusions from the data analysis and discussion and makes recommendations for implementation to the CCAWS and AGMS Project Managers. This chapter concludes with recommendations for further study.

II. METHODOLOGY

A. INTRODUCTION

This chapter explains the methods employed in the development and analysis of the proposed unit self-assessment package. It begins with a description of the qualitative methods used to define the research requirements and to obtain background information pertaining to the organizational assessment process, the military project management office, and available assessment instruments and quality improvement software. The chapter then focuses on the techniques employed in the development of the prototype user interface, data storage, analysis, and presentation software applications. Next, the chapter describes the quantitative methods used to evaluate the candidate self-assessment and the prototype software applications. This chapter concludes with a description of the limitations applicable to this research.

B. QUALITATIVE METHODS

1. Interviews

Research began with the identification of specific research requirements and the justification for the research effort. This was accomplished by conducting interviews with the CCAWS Project Manager, the AGMS Deputy Project Manager, and personnel from within both project management offices, identified as participants of the July 1994 unit assessments using the Self-assessment Guide for Organizational Performance and Customer Satisfaction.

2. Archival Research

Once the requirements were defined, a literature review was conducted of available materials to locate existing assessment instruments and quality improvement software

programs within the public and private sectors with the potential for satisfying the sponsors' requirements. A second literature review was conducted to ascertain background information pertaining to the research effort. This review focused on the rationale for conducting unit self-assessments and the organizational dynamics of a military project management office.

3. Participant Observation

In addition to conducting literature reviews, this researcher observed first-hand the CCAWS and AGMS project offices on several occasions totaling a period of one month. These visits verified the amount and types of computer resources currently in use by the project offices, to include identifying potential hardware and software compatibility issues. Also observed were the functions of a military project management office, its environment, and the interaction between its divisions, branches, and product lines.

4. Researcher Educational Preparation

In February 1995, this researcher attended a four-day workshop on the Continuous Improvement (CI) Toolkit for Windows, a potential solution to automate the unit self-assessment process. The workshop was designed to educate system administrators and assessment facilitators in the installation, setup, modification, capabilities, and procedures of the CI Toolkit.

In addition to the CI Toolkit, the above workshop focused on the organizational assessment process. Specifically, the workshop addressed the Malcolm Baldrige Award Criteria, preparation and submission of a Baldrige application, and the integration of the CI Toolkit into the Baldrige submission process.

This researcher also attended, as part of the Master's degree requirements, a course in strategic management. The primary focus of this course was the identification and analysis of organizational design factors. Specifically, the course presented a theoretical model, developed by the Harvard School of Business and modified by Dr. Nancy Roberts, depicting the interaction between various inputs, organization design factors, and their resultant outcomes. Knowledge acquired in this course was applied in the evaluation and comparison of the organizational models that support the assessment instruments addressed in this study.

5. Model Construction

Using the model developed by the Harvard School of Business as a basis for comparison, this researcher evaluated the organizational models supporting the Self-assessment Guide for Organizational Performance and Customer Satisfaction and the USAREUR Organizational Diagnostic Survey, the candidate assessment instrument selected in this study as a viable alternative to the aforementioned Self-assessment Guide for Organizational Performance and Customer Satisfaction. The results of these comparisons were then used as the basis to create a prototype model that more accurately reflects the critical organizational design factors of a military project management office.

6. Software Development

Applying the information gained in interviews with CCAWS and AGMS management personnel, an integrated software program designed to satisfy the sponsors' specific automation requirements was developed. This program consists of two distinctive applications: a user interface and a data storage, analysis, and presentation application.

The user interface application was developed using Novell's AppWare, a graphical, object oriented design and development tool. The interface was designed to satisfy four of the nine sponsor automation requirements. These requirements are:

- Enable the project office to administer an organizational assessment over an existing network structure.
- Provide a familiar, user friendly interface to the assessment participants for the purpose of data collection.
- Compatibility with existing computer resources and software programs.
- Export collected data to the analysis and presentation application.

The analysis and presentation application was developed using Microsoft's Access database program. The application was designed to address the remaining five user automation requirements:

- Import collected data from the user interface program.
- Analyze collected data.
- Store collected data for a five year period.
- Present analyzed data in a meaningful format.
- Enable data, analysis, and presentation output to either a monitor or printer.

C. QUANTITATIVE METHODS

1. Prototype Evaluation

A sample unit self-assessment of both the CCAWS and AGMS project management offices was conducted in June 1995 for the purpose of evaluating the candidate assessment and the prototype software application. The evaluation was specifically designed to evaluate the appropriateness of the individual functional areas and items of the USAREUR

Organizational Diagnostic Survey (modified) for use in measuring the program health and customer satisfaction of a project management office and to verify the structure, functionality, and effectiveness of the prototype software application (user interface) to collect user feedback. Data and feedback from the prototype evaluation were accumulated through the use of multiple surveys, discussed below, and selected project manager and unit facilitator interviews.

2. Survey Administration

Responses were elicited as to the appropriateness of the candidate unit self-assessment and the prototype software application through the use of four independent surveys. Each of the four surveys were completed by the participants of the candidate assessment evaluation and prototype software testing. The sample used in these surveys and the design of each survey are discussed below.

a. The Sample

Each of the four surveys were administered to personnel participating in the prototype assessment and software evaluation, representing the sponsoring organizations (CCAWS and AGMS). Every effort was made to obtain a sample that accurately represents the demographic makeup of each participating organization. Within these guidelines, the selection of participating individuals was determined by random draw.

(1) Population. The population from which the sample was drawn consisted of all personnel assigned or attached to either the CCAWS of AGMS project offices. The AGMS project office employs 97 personnel, divided into four division and 17 separate branch offices. CCAWS employs a total of 103 personnel in four divisions, separated into 15 branch offices. The total population numbered 200 personnel.

This population was divided by the researcher into three major demographic categories: level of responsibility, sex, and employment status. The level of responsibility category was sub-divided into management personnel, clerical personnel, and all others. Sex was further divided into male and female participants, and employment status was broken down into military personnel and civilian employees. The demographic break-down of the population is presented in Table 1.

	MGT	Clerical	Other	Male	Female	MIL	CIV
AGMS	12	11	74	65	32	8	89
CCAWS	23	14	66	71	32	9	94
Total	35	25	140	136	64	17	183
						200	
Pop. %	18%	12%	70%	68%	32%	9%	91%
						100%	

Table 1: The Population.

(2) The Sample. The sample target was 50 participants, 25% of the total population, consisting of an equal percentage from each demographic category defined above and a proportionate number from each of the participating organizations. The demographic make-up of the actual sample, by total and percentage, is presented in Table 2.

The accumulated sample is representative of the CCAWS/AGMS population, with the following exception: The sample contains a disproportionate number of military managers. This is due to unavoidable scheduling conflicts and the researcher's decision to select alternates from within

these categories, when available, to maximize input from these categories with respect to Survey #2.

	MGT	Clerical	Other	Male	Female	MIL	CIV
AGMS	3	3	19	17	8	2	23
CCAWS	9	3	13	14	7	5	20
Total	12	6	32	35	15	7	43
						50	
Sample %	24%	12%	64%	70%	30%	14%	86%
						100%	

Table 2: The Sample.

b. Survey #1

Survey #1 (Appendix A) is the USAREUR Organizational Diagnostic Survey (modified). Researcher modifications to the original USAREUR Organizational Diagnostic Survey (Appendix B) preceding the assessment evaluation and prototype testing are discussed below. This survey, in its final form, upon completion of the researcher's analysis is the CCAWS/AGMS Unit Self-assessment Survey (Appendix C), a deliverable product of this thesis.

(1) Survey Design. The USAREUR Organizational Diagnostic Survey (modified) is composed of seventy-four (74) items, grouped into eight functional areas and a general category. The functional areas represented in the survey are:

- Strategy
- Tasks
- Structure
- People

- Rewards
- Processes
- Leadership
- Technology

This survey was designed to measure each respondent's opinion as to the program health of his/her respective organization, with respect to each functional listed above.

(2) Survey Modifications. Several modifications to the original USAREUR Organizational Diagnostic Survey were made prior to conducting the assessment evaluation and prototype testing. These modifications were made to accomplish the following items:

- Separate items soliciting multiple responses into individual items.
- Clarify items with complex or ambiguous wording.
- Remove items clearly inappropriate for use in a project management office.
- Replace all references to the "organization" with the "project management office".

(3) Analysis. The analysis of data measuring the health of the participating organizations is beyond the scope of this thesis and therefore will not be presented as part of this study. These data elements were collected solely for the purposes of establishing an initial baseline to be used by each participating unit for future assessments and to accumulate realistic data for use in the design of data queries, analysis tools, and presentation layouts.

c. Survey #2

Survey #2 is the Unit Self-assessment Item Survey. (Appendix D)

(1) Survey Design. Survey #2 was designed to solicit participant feedback about each individual item incorporated in the USAREUR Organizational Diagnostic Survey,

as modified by this researcher. Respondents were asked to rate six different aspects measuring three general categories of each item. The three categories were:

- The wording of the item
- The item's content
- The scale provided to answer the item

With respect to the item's wording, respondents were asked to rate the wording's clarity and conciseness. As for the item's content, respondents were asked to rate the understandability of the item, the relevancy of the content to their job position, and the suitability of the item. In this context suitability is defined as unoffensive. Lastly, each respondent was asked to rate the appropriateness of the scale provided to respond to the item.

(2) Analysis. Respondents were asked to rate each aspect described above using a bipolar scale with three intermediate points, five points total (Figure 1). The endpoints of each scale were labeled with opposing adjective descriptors connoting a positive or negative response. Each respondent was also asked to provide comments in these areas on each item.

Is the item's wording:

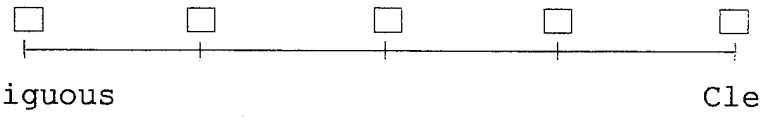


Figure 1: Example Bipolar Survey Item.

After all data were collected, individual responses were then translated to numerical values on a scale from negative two to two, zero being a neutral response. The numerical values were then grouped by item and aspect.

Calculations were performed to determine percentage response of the maximum possible score (100) per item, and the mean response and standard deviation for each item, by aspect. Items were then reviewed using the percentage of the maximum possible score calculations to identify questionable items. The screening criteria for this review was 99 percent. Items identified as questionable were then analyzed with respect to each measured aspect to identify those aspects containing significant shortcomings. A significant shortcoming was defined as an item aspect receiving less than a mean score of 1.91, which corresponds to an effectiveness rating of less than 95%. Items with one or more significant shortcoming were then analyzed against the qualitative responses for each deficient aspect to determine the appropriate corrective action.

d. Survey #3

Survey #3 is the Unit Self-assessment Survey, listed as Part A of the Unit Self-assessment and Software Survey. (Appendix E)

(1) Survey Design. Survey #3 was designed to elicit data and qualitative feedback on the candidate self-assessment's usefulness, applicability, and procedures, as well as general comments and suggestions for improvement. This survey employed two different questioning techniques: the bipolar method, described in survey #2, and open items eliciting a qualitative text or numerical response.

(2) Analysis. Bipolar items, as in survey #2, asked respondents to rate each aspect described above of each item using a scale with three intermediate points. Again, the endpoints of each scale were labeled with opposing adjective descriptors connoting a positive or negative response. Responses to these items were analyzed in a similar manner as

those described in survey #2. The difference being that there was no requirement to group individual items to conduct an initial screening for potential weaknesses.

Open items were designed to enable each respondent to provide his/her opinion, comments, or suggestions concerning the candidate assessment and its procedures. Responses to these items were summarized for use in the analysis and discussion of the overall assessment process.

e. Survey #4

Survey #4 is the Unit Self-assessment Software Survey, listed as Part B of the Unit Self-assessment and Software Survey. (Appendix E)

(1) Survey Design. Survey #4 was designed to solicit feedback on the self-assessment software's usefulness, applicability, and procedures, as well as general comments and suggestions for improvement of the software. As with Survey #3, this survey employed two different questioning techniques: the bipolar method, and open items eliciting a qualitative response.

(2) Analysis. The analysis of the items in this survey is identical to that described for survey #3.

D. LIMITATIONS

The following limitations apply to this research effort:

1. This thesis is limited to the study of an assessment instrument for use in a military project management office.

2. The data and qualitative responses used in the analysis of the candidate assessment instrument and the prototype software application are limited to inputs from the CCAWS and AGMS project management offices.

3. Software applications developed as the result of this study are the sole property of the United States Government and can only be modified with express permission of the CCAWS or AGMS Project Managers.

4. Modifications to software developed using Novell's AppWare requires the purchase of the AppWare development software and obtaining application project files that are external to the program. These project files have been retained by the researcher and the CCAWS and AGMS project management offices.

E. SUMMARY

The purpose of this research effort was to develop an automated unit self-assessment package appropriate to measure the program health and customer satisfaction of a military project management office. Using both qualitative and quantitative research techniques, this researcher has evaluated the unit assessment previously used by the CCAWS and AGMS project management offices against user specific requirements; identified the shortcomings with the previous assessment; selected an existing alternative as a candidate assessment; tested, analyzed, and modified the candidate assessment; automated the assessment process; and provided recommendations the CCAWS and AGMS Project Managers for the implementation of the proposed assessment and software package.

III. THE PROJECT MANAGEMENT OFFICE

A. INTRODUCTION

A Project Management Office (PMO) is an organization responsible to facilitate the design, development, production, fielding, and support of a major systems acquisition. The purpose of this chapter is to provide background information about the military project office as a customer of the unit self-assessment. This discussion is divided into four areas: The military project management environment; the project office structure; functions of the project office; and a description of the CCAWS and AGMS project offices.

B. ENVIRONMENT

The environment in which the PMO exists is quite complex.

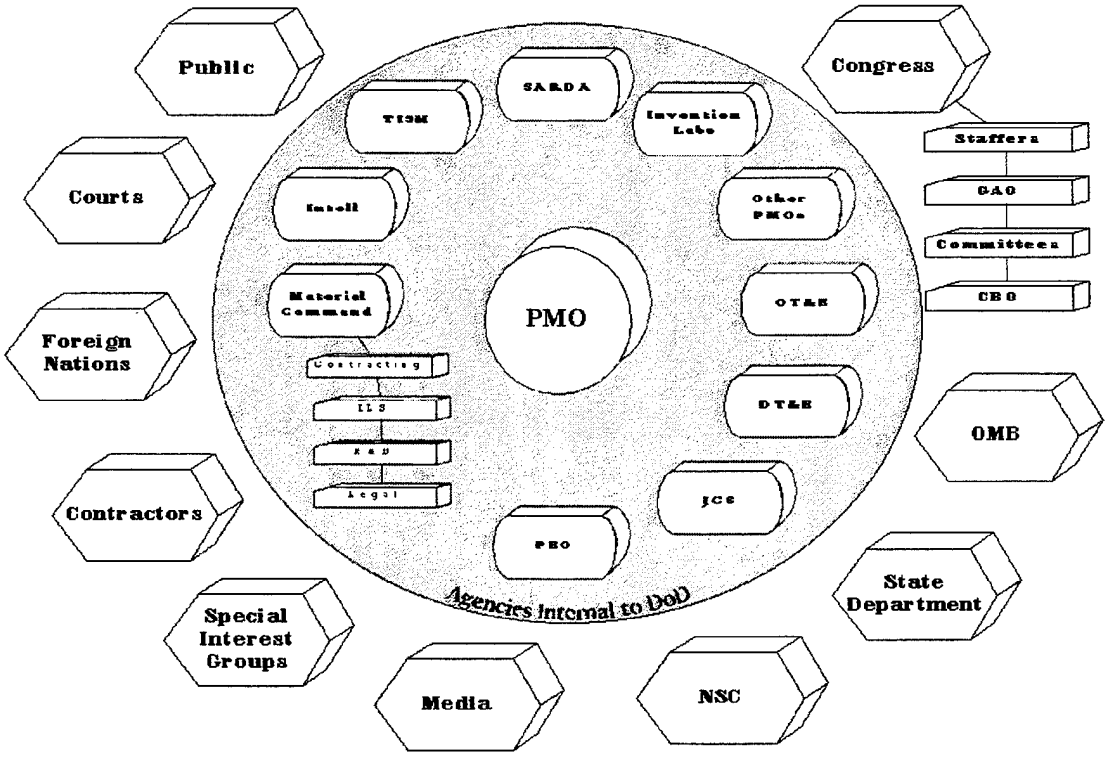


Figure 2: The Project Management Environment.

Within this environment, depicted in Figure 2, are many agencies, both within and external to the Department of Defense, with which personnel within the PMO must directly interact with on a daily, weekly, or monthly basis to ensure the successful accomplishment of the project's mission. In addition to their coordinating role, many of these agencies provide guidance or exert a significant amount of control over the project office's objectives and activities. The project office must proactively respond to the needs and desires of these agencies for a number of varying reasons. These reasons include:

- Congressional support.
- Public support.
- Resources.
- Legal Support.
- Task accomplishment.

C. STRUCTURE

The military project management office is structured along the traditional functional and commodity area lines. Many project offices operate, however, along product lines in Integrated Product Teams (IPTs) to enhance the efficiency and effectiveness of the services they perform. Viewing the project office's structure as it relates to the implementation of its IPTs, the project office becomes a matrixed organization (Figure 3). Under this concept, selected personnel assigned within the organization's functional or commodity divisions are aligned to provide dedicated support in their specialty towards the development of one or more of the project office's specified products. IPTs are normally lead by the manager with responsibility for the completed product. Members of the IPT remain assigned in their

functional or commodity area, but are responsible to the IPT team leader for product related activities.

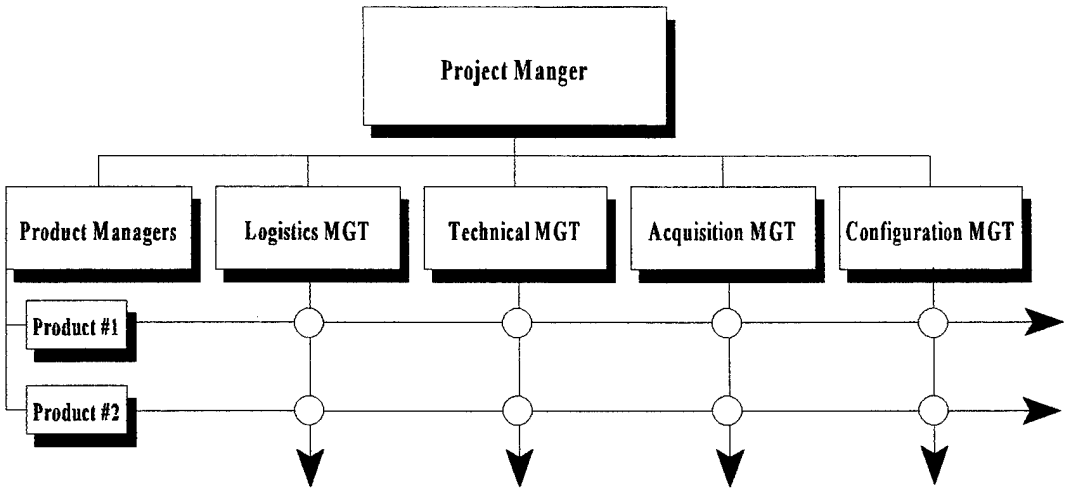


Figure 3: Example Matrix Organization.

D. FUNCTIONS

Each military project office is uniquely structured and differs in its approach in supporting the development, production, and fielding of its assigned weapon system. Despite these differences, all military project offices perform the same general or "core" functions. These functions and their integration with each other are depicted in Figure 4. (Cleland, Gallagher, and Whitehead, 1993, p. 10.21) The "core" functions identified by these authors include:

- Project Management
- Contract Management
- Business Management
- System Engineering Management
- Integrated Logistic Support Management
- Production Management
- Configuration Management
- Risk Management

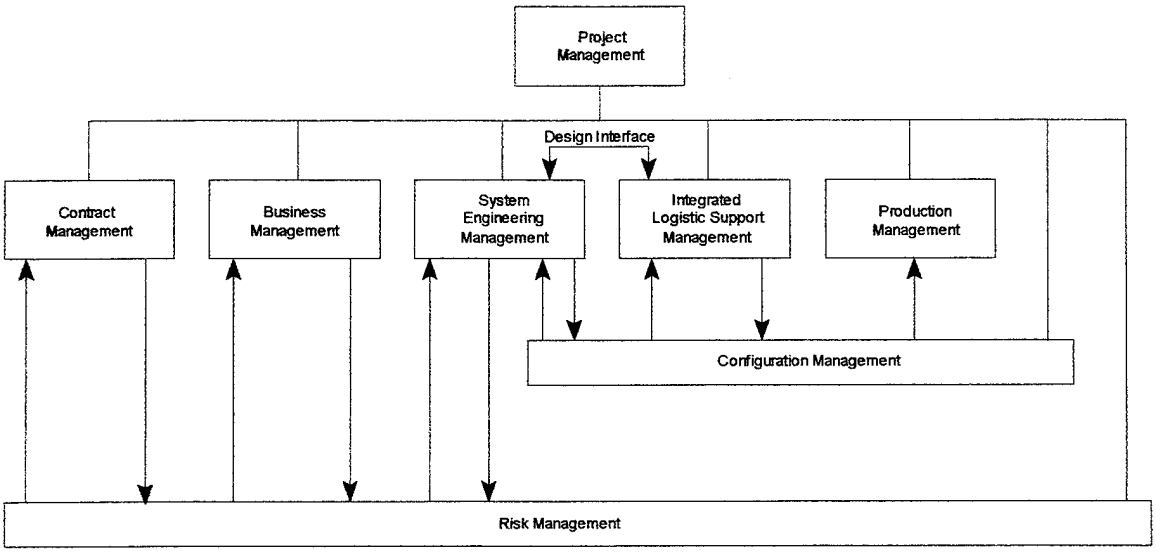


Figure 4: Project Management Functional Integration.

Project Management is the function of integrating each of the projects subordinate functions for the successful development of the desired system. This integration is facilitated through the business, administrative, and technical management of the sequence of project activities in the project cycle. **Contract Management** or acquisition management is a project function dedicated to the planning, design, implementation, and administration aspects of contractual obligations and documents involved in the acquisition of a major system. Tasks included in this function include:

- Procurement planning and guidance.

- Developing contract requirements.
- Contract administration.

Business Management encompasses those activities normally associated with the efficient functioning of all organizations. Categories within this function include:

- Financial Management
- Personnel Management
- Resource Management
- Time Management

System Engineering Management is the practical application of scientific and engineering methods and techniques to:

- Transform mission need and operational requirement statements into a description of a system configuration which best provides the required capabilities in accordance with the specified effectiveness metrics.
- Coordinate the system design definition and detail design process.
- Integrate all technical considerations and assure compatibility of all physical, functional, and technical interfaces to facilitate an optimized total system design.
- Integrate the activities of all the applicable engineering disciplines and specialties into a unified engineering team approach to facilitate an effective and efficient system design process.

Integrated Logistic Support (ILS) Management designs and develops the logistic support system concurrent with the objective system development to ensure that:

- The supportability considerations influence the system design process.
- ILS impacts are addressed during the system trade studies in the early project phases.
- ILS options and tradeoffs can be considered before the system design is frozen or the product baseline are established.
- The ultimate logistic system is an integrated system with congruence among all logistic elements.

Production Management includes those activities required to produce the total system effectively and efficiently. Tasks in this are include:

- Production planning and support.
- Production and industrial engineering for process, facilities, and plant equipment design, development, and integration.
- Production inventory management and control.

Configuration Management is the project office function responsible for documenting the functional and physical characteristics of the objective system configuration. Tasks encompassed within this function include:

- Technical definition and documentation of the system functional and physical characteristics.
- Technical and administrative control of all changes to the systems characteristics and attributes.
- Recording and reporting change processing and implementation status.

Risk Management is the function designed to force organized purposeful thought to the subject of eliminating, minimizing, or containing the effects of undesirable occurrences. Risk management is a continual process throughout the acquisition cycle. Typical risks associated with the acquisition of a major weapon system include:

- Technical Risk
- Programmatic Risk
- Supportability Risk
- Schedule Risk
- Cost Risk

The project manager attempts to eliminate or minimize the occurrence of risk by:

- Identifying and planning for potential risk.
- Assessing and developing Courses of Action (COA) to address risk.

- Analyzing and comparing each COA, then selecting the best suited to mitigate risk.
- Implementing the selected COA to avoid, control, assume, or transfer risk.

E. THE CLOSE COMBAT ANTI-ARMOR WEAPON SYSTEMS AND THE AIR-TO-GROUND MISSILE SYSTEMS PROJECT OFFICES

Within the Army acquisition structure, project management offices are grouped into programs. Each program or Program Executive Office (PEO) reports directly to the Assistant Secretary of the Army for Research, Development, and Acquisition. Currently there are ten such programs, each encompassing the development of major systems that represent a unique capability on the modern battlefield (i.e. missiles, communication, etc.)

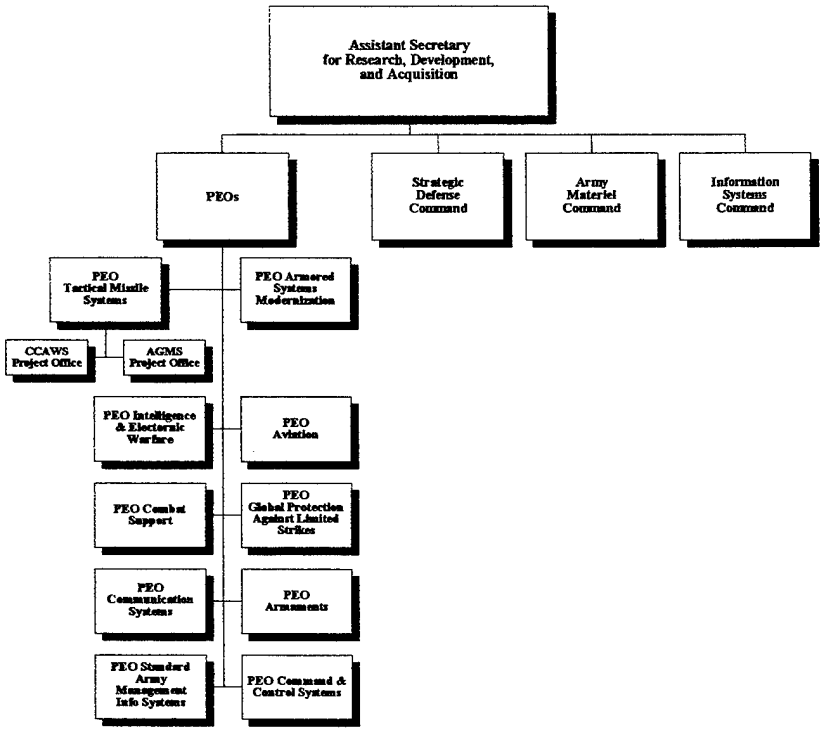


Figure 5: The Location of the CCAWS and AGMS Project Offices within the Army Acquisition System Structure.

The CCAWS and AGMS Project Management Offices are assigned to the PEO, Tactical Missiles, located at Redstone Arsenal, Alabama (Figure 5).

1. Air-to-Ground Missile Systems (AGMS)

AGMS is responsible for the planning, direction, and control of tasks involved in the development and upgrade of the Hellfire, Hellfire II, and Longbow Missile Systems. This includes all phases of development, procurement, production, distribution, and logistics support for the purpose of maintaining balanced programs to accomplish the stated objectives of the Army Acquisition Executive. The AGMS organizational structure is depicted in Figure 6.

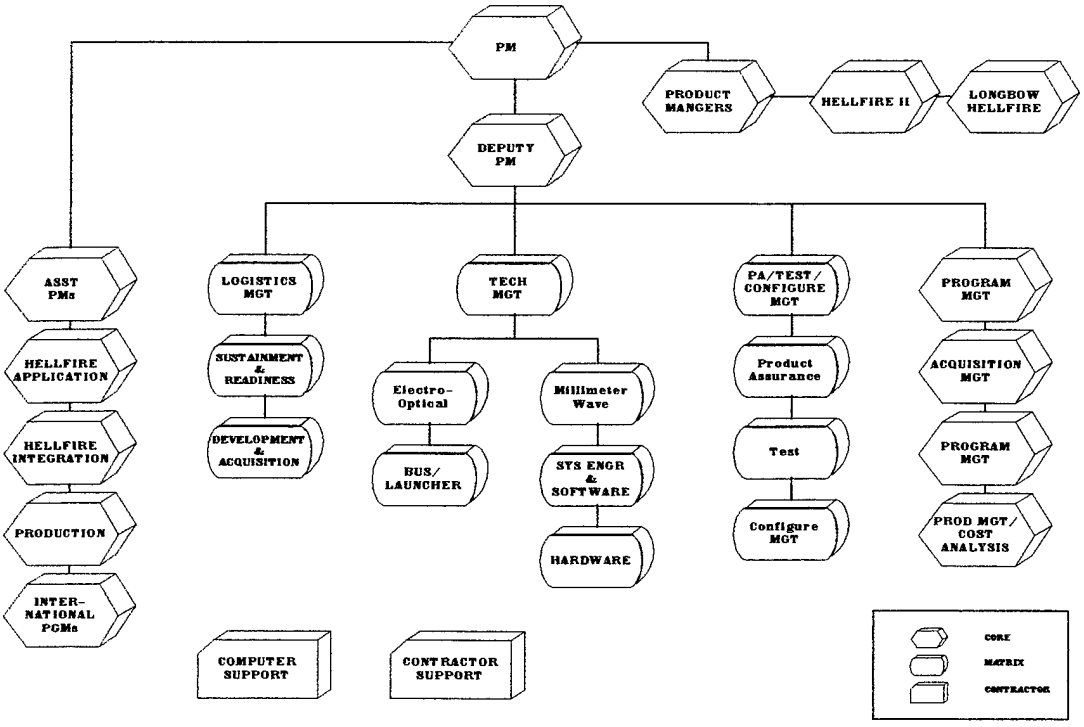


Figure 6: AGMS Organizational Diagram.

The AGMS project office also exercises operational control over personnel assigned to U.S. Army Missile Command (MICOM) functional organizations collocated with the project office to provide support in the areas of logistics, product assurance, engineering, test, and configuration management.

2. Close Combat Anti-armor Weapon Systems (CCAWS)

CCAWS is responsible for the development and upgrade of the Tube launched, Optically tracked, Wire-guided Weapon System (TOW), to include the Improved Target Acquisition System (ITAS), the Improved Bradley Acquisition System (IBAS), and all TOW missile configurations. CCAWS, as with AGMS, exercises operational control over personnel assigned to MICOM functional organizations collocated with the project office. The CCAWS organizational structure is depicted in Figure 7.

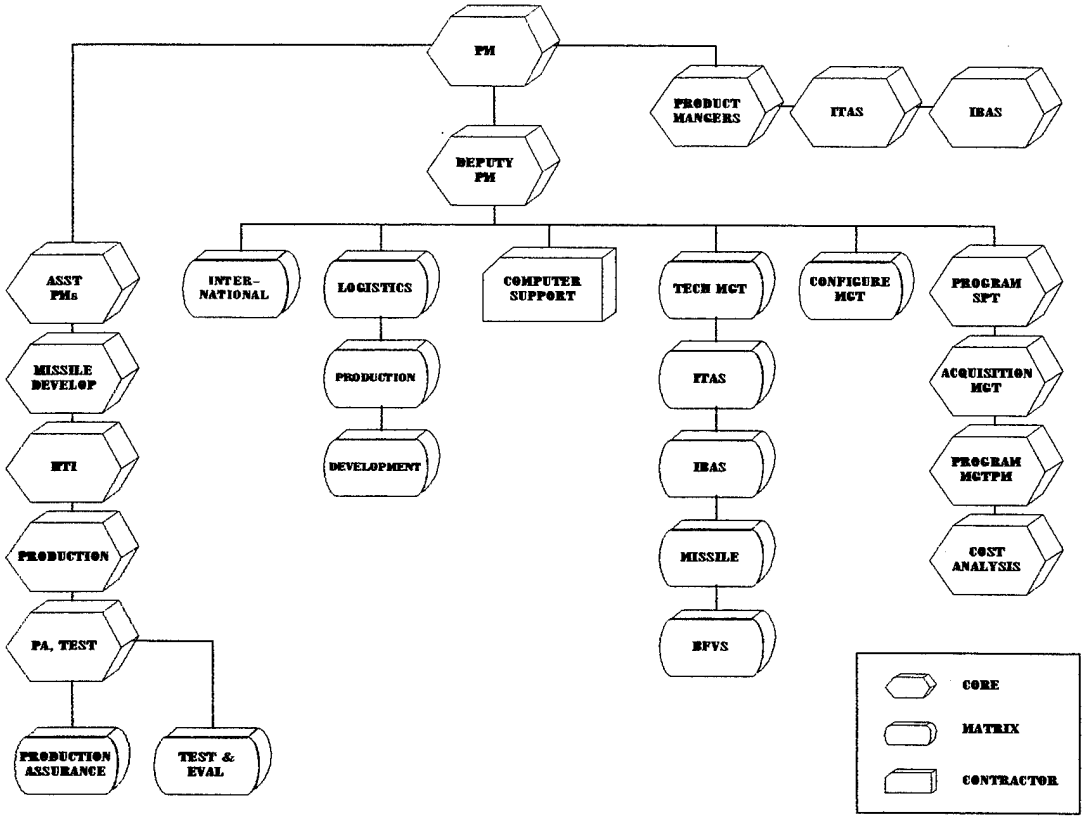


Figure 7: CCAWS Organizational Diagram.

IV. THE INSTRUMENTS

A. INTRODUCTION

The purpose of this chapter is to present and evaluate the assessment instruments addressed in this study and their supporting models. The chapter begins with a brief discussion of the theory and conceptual framework underlying the development and implementation of organizational assessments. It then presents a conceptual model developed by the Harvard School of Business, to analyze the effectiveness and interaction of organizational components. The chapter concludes with the description and evaluation of two assessment models and their assessment instruments used to measure the program health and customer satisfaction in a project management office. The first of these models and assessment instruments were used by the CCAWS and AGMS project offices to conduct assessments of their respective organizations in July 1994. The second model and assessment instrument were selected during the literature review as viable alternatives to those used by CCAWS and AGMS in July 1994.

B. THEORY AND GENERAL FRAMEWORK

The measurement of an organization's productivity and customer satisfaction is a crucial managerial task, both in the public and private sectors, given today's environment of declining resources. In order to effectively manage their scarce resources, managers must develop appropriate instruments to assess and improve the efficiency of their organization. The theory underlying the development and employment of such measurement instruments is termed Total Quality Management.

1. Total Quality Management

a. Philosophy

Total Quality Management (TQM) is a philosophy, as well as a set of guiding principles, that represents the foundation of continuous improvement in organizations. It applies both qualitative and quantitative methods to improve the materials and services provided by an organization, and seeks to meet the customer's needs, both now and in the future. The application of TQM integrates fundamental management techniques, existing improvement efforts, and technical tools in an effort to continually improve all organizational processes.

TQM addresses the quality of management as well as the management of quality. It involves everyone in the organization in a long term endeavor to develop processes that are customer oriented, flexible, responsive, and constantly improved in quality. Since quality includes any factor of a product or service of value to a customer, TQM seeks to create an environment to sustain a culture committed to the continuous quality improvement of these factors. TQM is also a means for improving personal effectiveness and performance, and for aligning and focusing all efforts throughout the organization. (Mansi, 1989)

b. Quality Measurement

As TQM principles are implemented within an organization, the measurements of quality and customer satisfaction become crucial elements in achieving improved productivity. Quality results from the successful integration of all an organization's functions to deliver first rate products and services. Customer satisfaction is the result of continuous quality control of the delivered products and services. Since all organizational functions play a part in

quality performance, each critical function within the organization should be measured to determine the level of quality at which the organization is functioning.

Civilian organizations measure quality performance using several methods. One method use is Statistical Process Control (SPC). Organizations using this method collect performance data, such as rework or defect rates, that focus on the production function of the organization. Although this is a valid method, it is narrow in focus and does not reflect organization-wide quality management efforts. Another form of measurement that is used, and one that does more readily identify the impact of organization-wide quality management is measurement based on actions. That is, measurement techniques that record customer feedback on products, measure the number of customer complaints, or measure other such external data. This method is also narrowly focused and fails to address quality issues internal to the organization. Still, other organizations measure financial performance to gage quality within their organization. This form of quality measurement does not take into account customer satisfaction, nor does it fully consider organizational management techniques and other critical factors. (Saraph, Benson, and Schroeder, 1989)

Another quality measurement instrument used by civilian organizations is the organizational self-assessment. This type of measurement is considered by many to be the most comprehensive technique currently used in organizations. The use of self-assessment instruments provides an organization's management with increased flexibility, allowing management to modify the assessment instrument, as needed, to reflect the organization's changing environment, values, and procedures. The most widely used and popular self-assessment instrument is the Malcolm Baldrige National Quality Award. The Baldrige award was created to recognize the achievements of U.S.

companies that excel in the implementation of successful quality strategies. It is a highly respected accolade and a useful diagnostic tool that measures the organization's overall quality management and performance. The Baldrige Award incorporates a team based, consensus approach by the organization's management to measure of a set of seven quality criteria, which are in turn used to improve the organization's performance. (ASQC, 1995)

Just as the use of TQM concepts have become the vehicle for improving productivity and customer satisfaction in all sectors of private industry, so have they become the impetus for improvement in Federal organizations. Subsequent to the onset of "quality consciousness" within the private sector, President Clinton encouraged Federal managers at all levels to manage quality improvement in accordance with criteria established by the Presidential Award for Quality. These criteria, extracted and modified from the Baldrige Award, guide Federal agencies in striving toward increased quality management by improving operational performance and customer satisfaction. The National Performance Review Report of September 1993 reinforced this viewpoint suggesting that all Federal agencies adopt these criteria and conduct regular assessments using the Presidential Award's implementing instrument, the Self Assessment Guide for Organizational Performance and Customer Satisfaction, as a means of identifying areas needing improvement. (Federal Quality Institute, 1993)

Recalling the principal focus of this study, which is to develop an assessment instrument to effectively measure the program health and customer satisfaction of a project management office, one must begin by analyzing the assessment instrument currently being used, as well as viable alternatives to the same. A study of these assessment

instruments, however, would be fruitless without first considering the basis for the instrumentation design. Therefore, this study will first address the assessment models supporting each of the instruments to be considered, followed by a discussion of the assessment instruments themselves. In order to effectively analyze and compare the models identified in this study, the Harvard Business School model will be used. The Harvard Business School model was chosen as the conceptual basis for comparison because it is the most comprehensive tool available for use in analyzing the interrelationships between various critical organizational activities.

2. The Harvard Business School Model (modified)

The Harvard Business School model was developed as an analysis tool to educate its students in the factors involved in strategic planning and management. The model has subsequently been adopted and used by Dr. Nancy C. Roberts for instruction at the Naval Postgraduate School, Monterey, California. In addition to teaching this model, Dr. Roberts has successfully applied the model, as a consultant, while analyzing the strategic planning factors of numerous private sector, state government, and Federal Government organizations. Based on her exposure to this model, through research and practical application, Dr. Roberts has made several modifications to the original Harvard model. The Harvard model, as modified by Dr. Roberts (Figure 8), is used by this researcher as the basis to evaluate the models that support the assessment instruments addressed in this study. Each model is evaluated against the Harvard model to determine the comprehensiveness in which it addresses the critical organizational design factors that determine the success or failure of an organization.

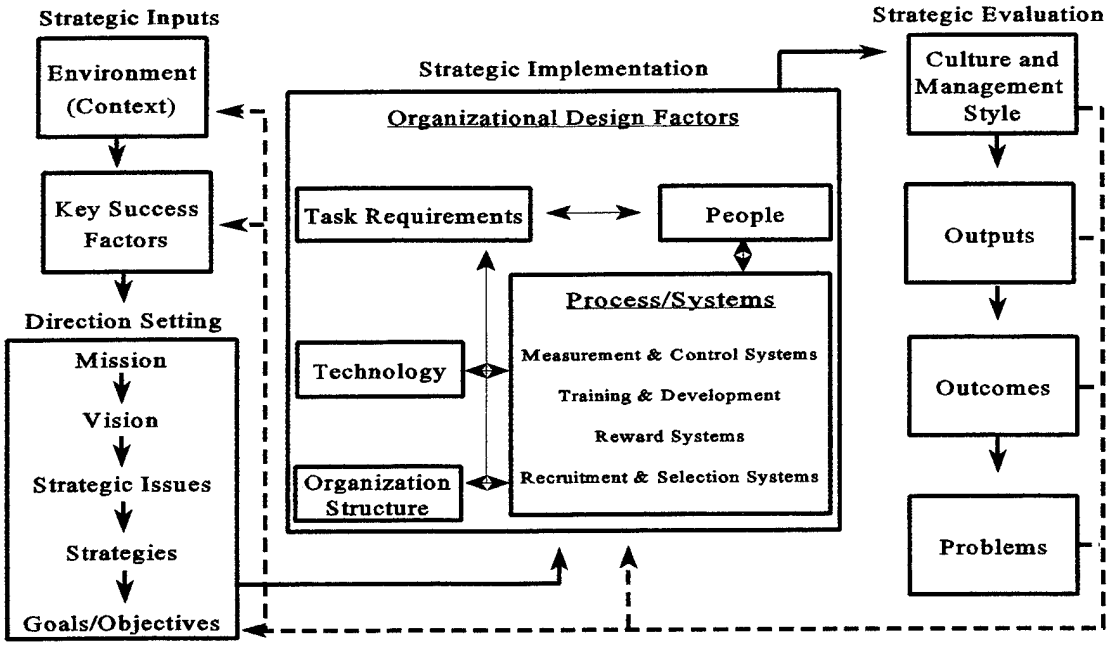


Figure 8: The Harvard Business School Model (modified).

The Harvard Business School model (modified) focuses its analysis in four general areas:

- Strategic Inputs
- Direction Setting
- Strategic Implementation
- Strategic Evaluation

The interrelationships between these areas and their internal elements are indicated with solid arrows. Dashed arrows represent feedback from one area to another.

The first area, **Strategic Inputs**, consists of two categories: Environmental Factors, and Key Success Factors. **Environmental Factors** - are defined as elements that affect an organization of which it has no direct control. Examples of environmental factors include: The status of the economy, the level of competition in the industry, and social and political change.

Key Success Factors - are critical elements required for an organization to succeed in a particular endeavor, given the aforementioned environmental factors. Examples of key success factors are: Responsiveness, Marketing, and the Delivery of Goods or Services.

The second area addressed by the Harvard model is **Direction Setting.** The components within this area collectively represent top level management's plan for the organization to accomplish its key success factors, given the current environmental factors. The elements of direction setting include:

- The Mission
- The Vision
- Strategic Issues
- Strategies
- Goals and Objectives

The Mission - is a general statement describing the organization's overall purpose or reason for being.

The Vision - of an organization conceptualizes the desired endstate of the organization at mission accomplishment.

Strategic Issues - are items of critical focus, determined by senior management, that relate to the successful accomplishment of the organization's stated mission and key success factors.

Strategies - are management's overarching plans formulated to address the identified strategic issues.

Goals - are defined as interim success points established by management. Goals are used to measure the organization's progress towards accomplishing their defined strategies.

Objectives - are the basic building blocks or steps that comprise the organization's established goals.

The third area addressed by the Harvard model is **Strategic Implementation.** This area is focused on the identification and assessment of the organization's design factors, as well as their interaction with one another. Organizational design factors, according to the Harvard model include:

- Task Requirements
- Technology
- People
- Organization Structure
- Process/Systems

Task Requirements - are defined as the basic activities an organization must perform effectively to accomplish its mission and achieve its key success factors, given the environmental factors.

Technology - is defined as the basic methods or techniques used within the organization.

People - refers to all human resources available to the organization.

Organization Structure - focuses on the basic grouping of the organization's activities and people. Structure is also concerned with the devices used by the organization to integrate these activities and people.

Processes/Systems - is focused on the various processes and systems in place within the organization to guide the remaining organizational design factors towards the achievement of the key success factors and mission accomplishment. Critical processes/systems identified by the Harvard model include:

- Measurement and Control
- Training and Development
- Rewards

- Recruitment and Selection

The final area evaluated by the Harvard model is **Strategic Evaluation.** This area is comprised of:

- Culture and Management Style
- Outputs
- Outcomes
- Problems

Culture and Management Style - is the pattern of past behavior, activity, and managerial effectiveness which may have an affect on the current or future functioning of the organization.

Outputs - are clearly identifiable and measurable products or services provided by an organization.

Outcomes - are the consequences or results affecting the organization or its environment related to the organization's outputs.

Problems - are defined as critical flaws or malfunctions associated with one or more of the previously defined categories.

C. INSTRUMENT EVALUATION

1. The Presidential Award for Quality and the Unit Self-Assessment Guide for Organizational Performance and Customer Satisfaction

a. The Presidential Award for Quality

The Presidential Award for Quality was instituted in 1988. The award was created to recognize organizations that have implemented quality management in an exemplary manner, resulting in high quality products and services, the effective use of taxpayer dollars, and to promote quality management awareness and implementation throughout the Federal Government. (Federal Quality Institute, 1995, p. 1)

The Presidential Award model addresses seven quality criteria, common to most Federal organizations. These criteria (Figure 9) were extracted and modified from the Baldrige model to guide Federal agencies in striving toward increased quality management, improved operational performance, and customer satisfaction. As with the Harvard model, the relationships between each of the areas are indicated with solid arrows.

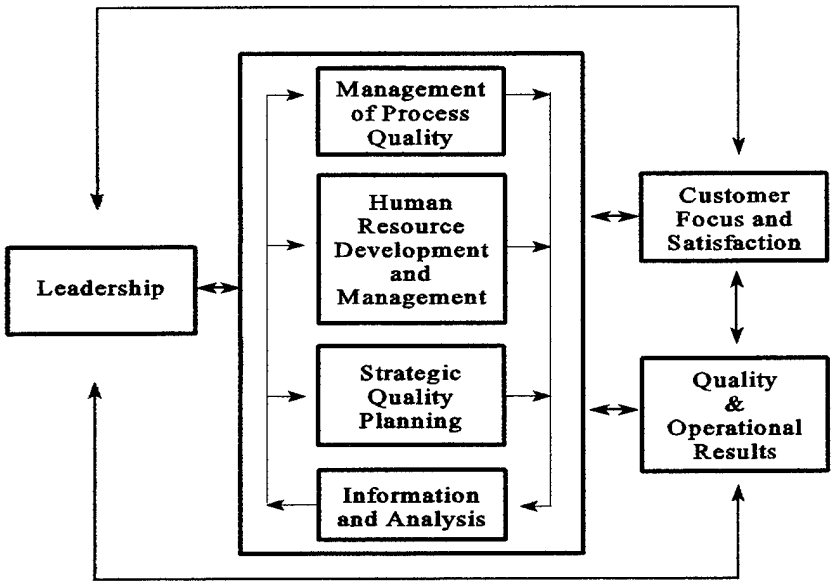


Figure 9: The Presidential Award Model.

According to the Presidential Award criteria: **Leadership** - is defined as the executives' personal commitment and involvement in creating and sustaining an organizational vision and customer focus orientation, as well as clear and visible quality values. The evaluation of this criterion is concerned with how the vision, values and customer focus orientation are integrated into the management system, labor relations, and external partnerships.

Management of Process Quality - addresses the systematic processes used by the organization for continuous improvement of quality and operational performance, the design and management of process quality for all work units, management of internal customer-supplier relationships, supplier and intermediary quality, and quality assessment.

Human Resource Development and Management - examines how the entire workforce is enabled to develop its full potential, and to pursue quality and operational performance improvement goals. It also addresses efforts to build and maintain an environment for workforce excellence.

Strategic Quality Planning - focuses on the organization's planning process, both short and long-term, and how key quality requirements are integrated into the overall planning process.

Information and Analysis - examines the scope, management, and use of data, information and measures, and how they are used to drive quality and operational performance improvement. It also examines the adequacy of the organization's data, information, and analysis system to support the improvement of customer satisfaction, products, services, and processes.

Customer Focus and Satisfaction - encompasses the organization's knowledge of external customer requirements, the techniques used to establish and maintain customer relationships, and the methods used to determine customer satisfaction.

Quality and Operational Results - considers the organization's trends and quality levels for products and services, operational performance, business processes and support services, supplier and intermediary quality, and comparison/benchmark data.

Evaluating the above criteria against the Harvard Business School model, we find that the Presidential Award Criteria, although appropriate to assess the quality improvement of an organization, does very little in the way of addressing the interaction and effectiveness of its organizational components. A comparison of the two models (Figure 10) reveals that the factors in the Harvard model that are also addressed by the Presidential model are limited to:

- Mission, Vision, Strategic Issues, Strategies, and Goals/Objectives
- Process/Systems
- People
- Outputs
- Outcomes

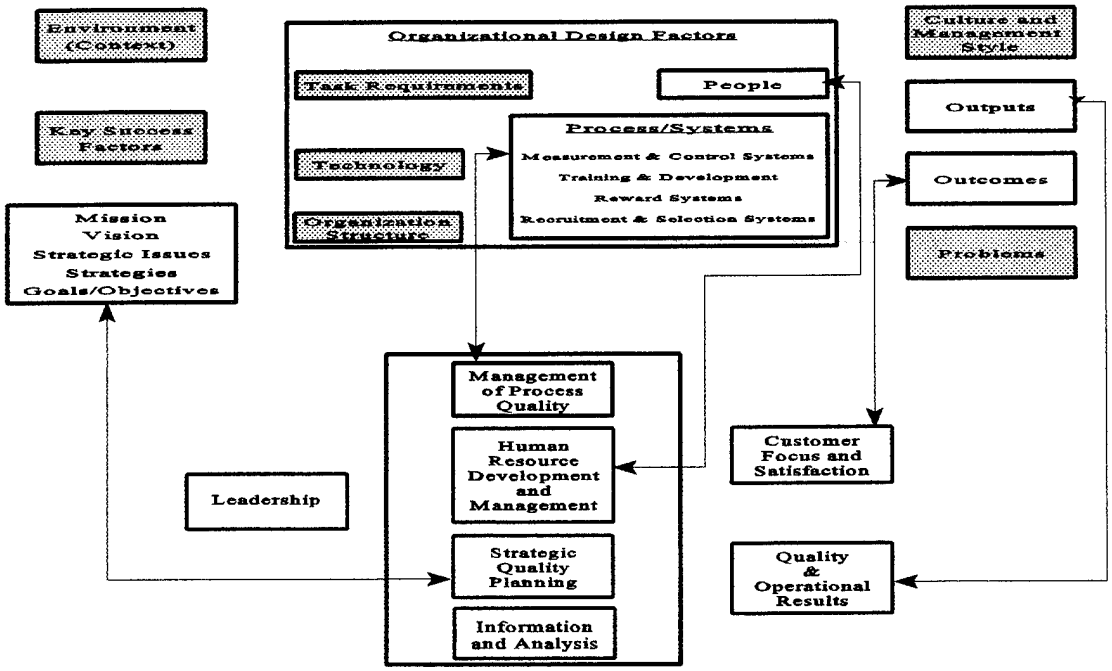


Figure 10: A Comparison of the Presidential Award Model and the Harvard Business School Model.

In the above diagram, factors that are similar in both models are connected with solid arrows. Factors in the Harvard model that are not addressed by the Presidential model are represented with darkened boxes.

Even though the factors listed above are addressed by both the Harvard model and the Presidential model, the clear focus of the Presidential Award criteria is to measure the quality improvement efforts in each of these areas, rather than their individual effectiveness and interaction with one another. Therefore, the Presidential Award model is not the most appropriate model for use in measuring both the program health and customer satisfaction of an organization.

b. The Self-assessment Guide for Organizational Performance and Customer Satisfaction

To assist Federal organizations in conducting a unit self-assessment prior to submitting an application for the Presidential Award, the Unit Self-assessment Guide for Organizational Performance and Customer Satisfaction, based on the award's criteria, was developed and made available to all Federal organizations. The self-assessment consists of 66 individual items, grouped in categories aligned with the Presidential Award criteria. This instrument, as with the Baldrige Award, incorporates a team based, consensus management approach to evaluate each item.

The Self-assessment Guide for Organizational Performance and Customer Satisfaction was designed to be universally applied to all Federal organizations. However, after conducting a self-assessment using the Self-assessment Guide for Organizational Performance and Customer Satisfaction in July 1994, the management teams and assessment participants from the CCAWS and AGMS project management offices identified several shortcomings with the instrument and its use in measuring the critical organizational factors within a project

management office. The shortcomings identified were:

- The assessment was lengthy and time consuming.
- The assessment items were wordy and ambiguous.
- Many assessment items did not apply to a project management office.
- The assessment did not address several critical functional areas within a project management office.
- The assessment did not provide a vehicle to collect qualitative feedback.

Given the above shortcomings and the fact that this assessment was constructed using the Presidential Award criteria as a basis, this researcher concludes that the Unit Self-assessment Guide for Organizational Performance and Customer Satisfaction, as with the Presidential Award Criteria, is inappropriate for use in measuring the program health and customer satisfaction of a project management office.

2. The Strategic Leadership Planning Model and the USAREUR Organizational Diagnostic Survey

a. The Strategic Leadership Planning Model

Based on the shortcomings identified with the Presidential Award for Quality and the Self-assessment Guide for Organizational Performance and Customer Satisfaction, a literature review was conducted to locate existing models and unit self-assessment instruments, within the public and private sectors that meet the project managers' requirements as potential alternatives to the above model and assessment instrument. Of the available models and assessment instruments, the Strategic Leadership Planning model and the United States Army, Europe (USAREUR) Organizational Diagnostic Survey, based on the Strategic Planning model, were selected as the model and instrument whose framework most accurately reflect the critical factors, identified by the CCAWS Project Manager and the AGMS Deputy Project Manager, that determine

the program health and customer satisfaction in a project office.

The program health of a project management office is defined by these managers as:

> The efficient functioning of an organization that results in the successful fielding and support of material to its designated users, where the organizational climate is based on teamwork and is one in which subordinates are empowered and resourced to accomplish their assigned tasks; decisions are made at the lowest appropriate level within the organization; personnel enjoy their working environment; and workers have confidence in the products and services they deliver.(Interviews, 1995)

Customer satisfaction, for the purpose of this study, is defined as:

> An organization's demonstrated success in meeting the requirements of the recipients to which services are performed or products are delivered by the organization. (Hunt, 1993)

The Strategic Leadership Planning model (Figure 11) addresses four general factor categories. (DA, CGSC, Strategic Planning, 1994) These categories are:

- Inputs
- Organizational Strategy
- Organizational Design Factors
- Outputs

Included in the **Inputs** category are factors external to and within an organization that are present and necessary to be considered at the outset of the strategic planning process. These Factors, according to the Strategic Leadership Planning model, are:

- Purpose
- Environment
- Culture
- Expectations

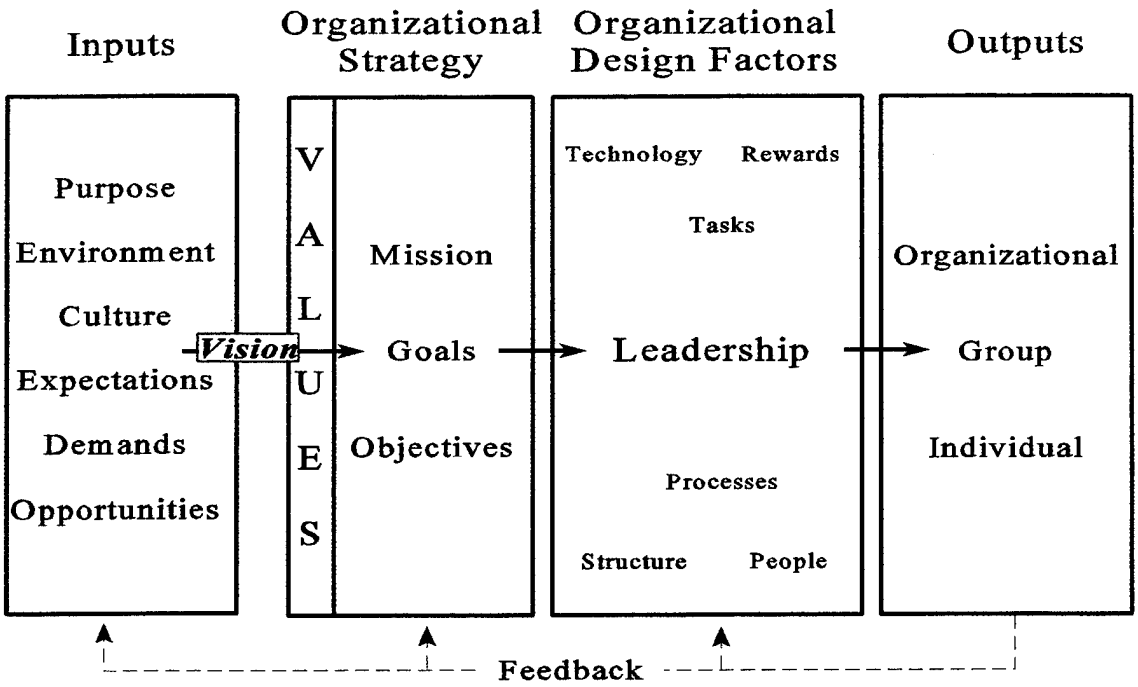


Figure 11: The Strategic Leadership Planning Model.

- Demands
- Opportunities

Purpose - is defined as a broad, general definition of the organization's reason for being in existence.

Environment - as in the Harvard model, encompasses those elements affecting the organization that are beyond the direct control of the organization's management.

Culture - is the pattern of past behavior, activity, and effectiveness which may have an affect on the current or future functioning of the organization.

Expectations - are standards or achievements, internal and external to the organization, considered reasonable, due, or necessary to be obtained.

Demands - are defined as requirements of work or of the expenditure of resources.

Opportunities - are favorable junctures in circumstances that produce a good chance for advancement or progress.

The organizational strategies category encompasses factors that comprise top management's overarching plan for operating the organization. These factors include:

- Values
- Mission
- Goals
- Objectives

Values - are defined as those core beliefs held by management that are assimilated into and guide the formulation of the organization's mission, goals, and objectives.

The **mission, goals,** and **objectives** factor definitions are similar to the factors of the same names previously defined in the description of the Harvard Business School model.

The next category addressed by the Strategic Leadership Planning model is **Organizational Design Factors.** Factors in this category include:

- Technology
- Rewards
- Tasks
- Leadership
- Processes
- Structure
- People

The **technology, tasks, processes, structure,** and **people** factor definitions do not significantly deviate from those factors of the same names previously defined in the description of the Harvard Business School model.

Rewards - are defined as the intrinsic and extrinsic motivators of people.

Leadership - is defined as the art of direct and indirect influence and the skill of creating the conditions for sustained organizational success to achieve a desired result. (DA, FM 22-103, 1987, p. 3)

The final category considered by the Strategic Leadership Planning model is Outputs. As with several factors in the above categories, the Strategic Planning model's definition of outputs is similar to that defined in the Harvard Business School model. The key difference being that outputs, according to the Strategic Leadership Planning model, are grouped into three distinct categories: Organizational, Group, and Individual.

Organizational Outputs - are the formal products or services produced by the organization.

Group Outputs - are the products of various groups or subsections of the organization, intra-organizational products or services.

Individual Outputs - are those products produced as the result of the efforts of a single individual.

Comparing the Strategic Leadership Planning model to the Harvard Business School model, it is clear that the Strategic Leadership Planning model more accurately reflects the factors addressed by the Harvard model as critical to determine the health of an organization. This comparison (Figure 12) shows a substantive increase in the areas covered by both models. Areas addressed in the Harvard model and covered in the Strategic Planning model include the areas addressed by both the Harvard model and the Presidential model, plus:

- Environment
- Task Requirements
- Technology

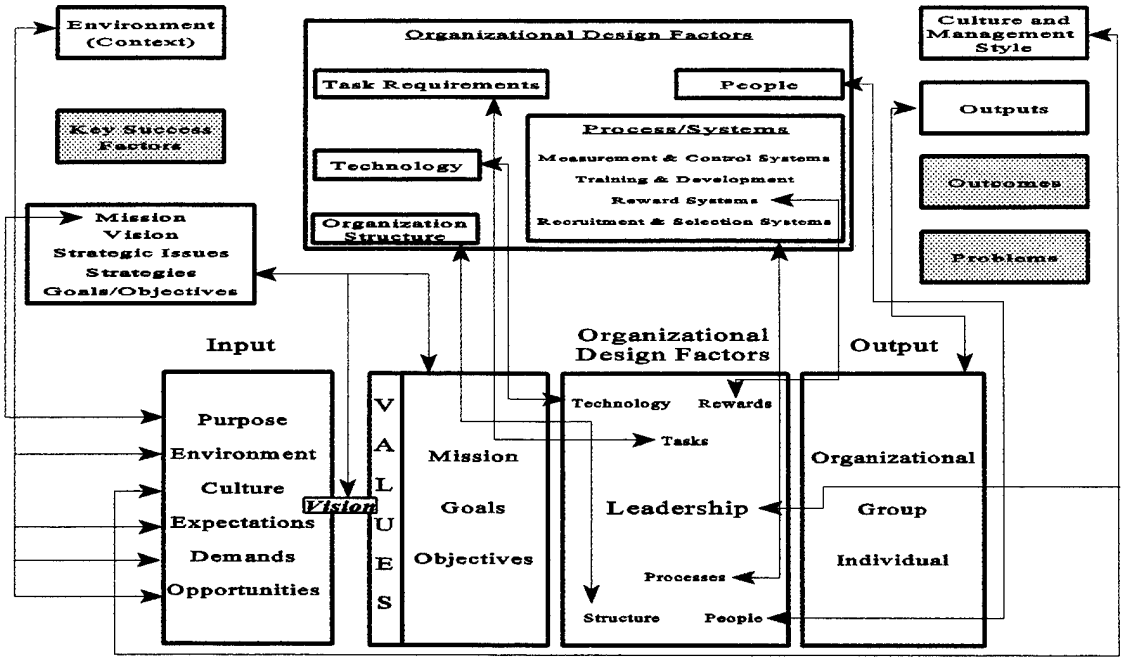


Figure 12: A Comparison of the Strategic Leadership Planning Model and the Harvard Business School Model.

- Structure
- Culture and Management Style

As with the previous comparison, factors that are similar in both models are connected with solid arrows. Factors in the Harvard model that are not addressed by the Strategic Leadership Planning model are represented with darkened boxes. There is one category, outcomes, that is covered by both the Harvard model and the Presidential model that is not addressed by the Strategic Leadership Planning model.

Although the Presidential model addressed some of the same general categories as the Harvard model, as discussed earlier, the definitions and intent of these categories were fundamentally different. This is not the case with the Strategic Leadership Planning model. As noted above, many of

the factor definitions used in the Strategic Leadership Planning model are similar in nature and intent to those defined by the Harvard model.

b. The USAREUR Organizational Diagnostic Survey

The USAREUR Organizational Diagnostic Survey (Appendix B) was developed in 1982 by the USAREUR Organizational Effectiveness Office as an implementing instrument for the Strategic Leadership Planning model. The purpose of the survey was to solicit feedback concerning an organizations values, organizational design factors, and outputs from each member within the organization. The original USAREUR Diagnostic Survey consisted of 66 individual items, grouped into eight categories aligned with the seven organizational design factors and the organizational strategy category identified by the Strategic Planning model. The survey was modified by this researcher and administered to selected members of the CCAWS and AGMS organizations to determine if the survey and its supporting model address the shortcomings identified with the Presidential Award model and the Self-assessment Guide for Organizational Performance and Customer Satisfaction and are effective tools to measure the program health and customer satisfaction of a project management office. The modified survey (Appendix A) administered during the prototype assessment testing consists of 74 items, grouped as above.

V. INSTRUMENT AUTOMATION

A. INTRODUCTION

The sponsoring organizations of this thesis requested that the assessment instrument recommended by this study incorporate a automated approach to the assessment process. This chapter describes the candidate software programs selected as potential solutions to this requirement. The chapter first discusses this researcher's evaluation of the Continuous Improvement (CI) Toolkit to meet the sponsors' specified requirements. The chapter then presents an independently developed software program, designed specifically for the purpose of administering the assessment instrument recommended by this study.

B. THE CONTINUOUS IMPROVEMENT TOOLKIT FOR WINDOWS

The Continuous Improvement Toolkit for Windows was developed by Systems Improvement, Incorporated in 1984. The program was designed as a medium to determine the status of an organization, measured against the management's goals and objectives, using an appropriate quality model. It was further designed to assist management to implement a plan for the correction of identified shortcomings; define, measure, and track their root causes; and benchmark the organization's progress against world class companies. (Interviews, 1995)

After interviewing the developers of the CI Toolkit and completing the workshop provided by Systems Improvement, this researcher evaluated the CI Toolkit's appropriateness for use in administering the USAREUR Organizational Diagnostic Survey and the assessment recommended by this study. The evaluation concluded that the CI Toolkit, as designed, does not meet the

sponsors' specific requirements and is not suitable to administer the above assessments for the following reasons:

- The CI Toolkit was not designed to collect feedback from 100 percent of an organization. It is primarily developed for use by organizations which intend to prepare an application for a quality achievement award, such as the Baldrige. It therefore incorporates a consensus-based approach to data collection. Data collected by this process are recorded as a single response.
- Data are stored to a flat, non-relational database file.
- Data recorded by the CI Toolkit are stored in a unique format that is incompatible with the analysis and database programs currently used by the sponsoring organizations.
- Analyses conducted within the CI Toolkit program are fixed and limited to summary statistics.
- The CI toolkit provides a limited number of answering scales. Once chosen, one scale must be used to answer all items in the assessment or survey.
- The display screens used to present the assessment items are copyrighted and cannot be tailored to maximize the administration of the recommended survey.
- The CI Toolkit is not a cost effective solution. The sponsors' require only one of the seven major features included in the software program.

C. PROTOTYPE SOFTWARE DEVELOPMENT

Based on the evaluation of the CI Toolkit for Windows and the sponsors' specific automation requirements, this researcher developed an independent prototype software program specifically designed to administer the assessment recommended by this study. The prototype consists of two major parts: a network-based user interface application for the purpose of data collection, and a data storage, analysis, and presentation application.

1. User Interface

The user interface was designed using Novell's AppWare. AppWare, version 1.2, is a commercially available visual application builder developed by the Novell Corporation. AppWare enables users to develop independent software applications using Object Oriented Design techniques. The program offers the user a selection of various standard subjects, objects, and operators common to the windows environment. These subjects, objects, and operators appear to the user as icons (Figure 13).

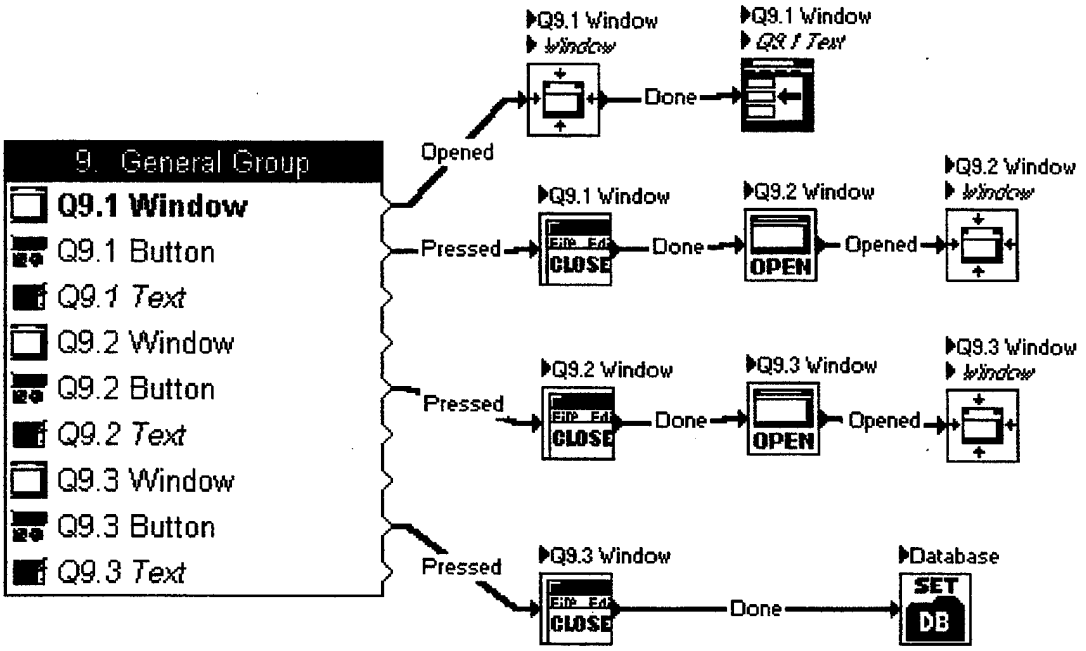


Figure 13: AppWare Objects and Operators.

Each icon represents a unique set (lines) of code required to perform a selected activity. The code, itself, is transparent to the user, thus allowing users untrained in writing code to develop complex applications. To design a program the user simply drafts the desired program hierarchy,

structure, and associated logic, places the necessary objects and operators within the developed structure, assigns parameters for each object and operator, complies the application, then runs the program.

The purpose of the user interface is to provide a network based, user friendly interface for data collection in a windows environment. The program is designed to accomplish the following tasks:

- Instruct users on the assessment procedures.
- Administer the assessment.
- Collect respondent feedback to the assessment items.
- Temporarily store the collected data.
- Export data to a common data format.
- Initiate the data storage, analysis, and presentation program.

The user interface is designed for installation onto an organization's Local Area Network (LAN). The data flow using the LAN is depicted in Figure 14.

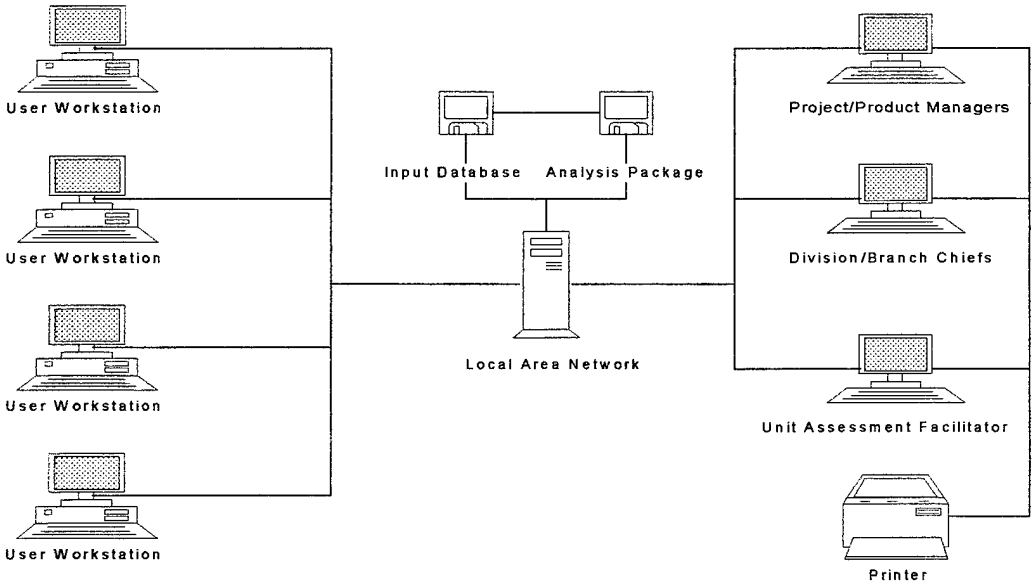


Figure 14: User Interface Network Diagram.

The LAN is the most efficient method to administer an assessment within a large or complex organization and provides an added degree of flexibility and comfort to both the facilitator and participants of the assessment. Data are input by each respondent from any available user workstation connected to by LAN to the network server. These data are sent to the network server and stored in the input database. After all data have been entered, the unit facilitator, from his/her workstation transfers the data from the input to the analysis package. Data and analyses stored in the analysis package can be viewed by the unit facilitator or the project/product managers from their respective workstations.

The user interface presents the assessment items using the standard Windows graphical environment. Respondents are presented a series of screens, each containing an assessment item and an appropriate scale to respond to the item. (Figure 15)

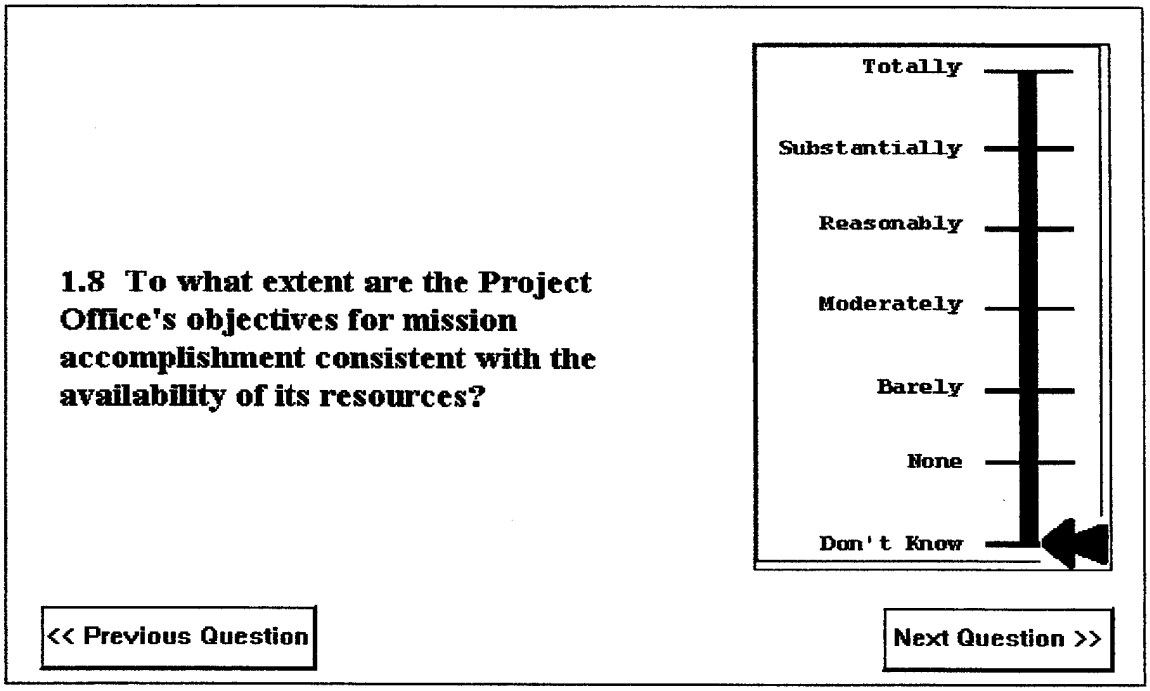


Figure 15: Example Assessment Item Screen.

The respondent simply indicates the appropriate response to each item then continues to the next item. Once entered, each response is converted to a numerical value and stored in the input database.

2. Data Storage, Analysis, and Presentation

The data storage, analysis, and presentation application was designed using Microsoft's Assess database program. The application is designed to accomplish the following tasks using parameters defined in the application development:

- Import data from the user interface program
- Format the data
- Query the data
- Analyze the data
- Present analysis results
- Print the data and analyses
- Store the data for a five year period

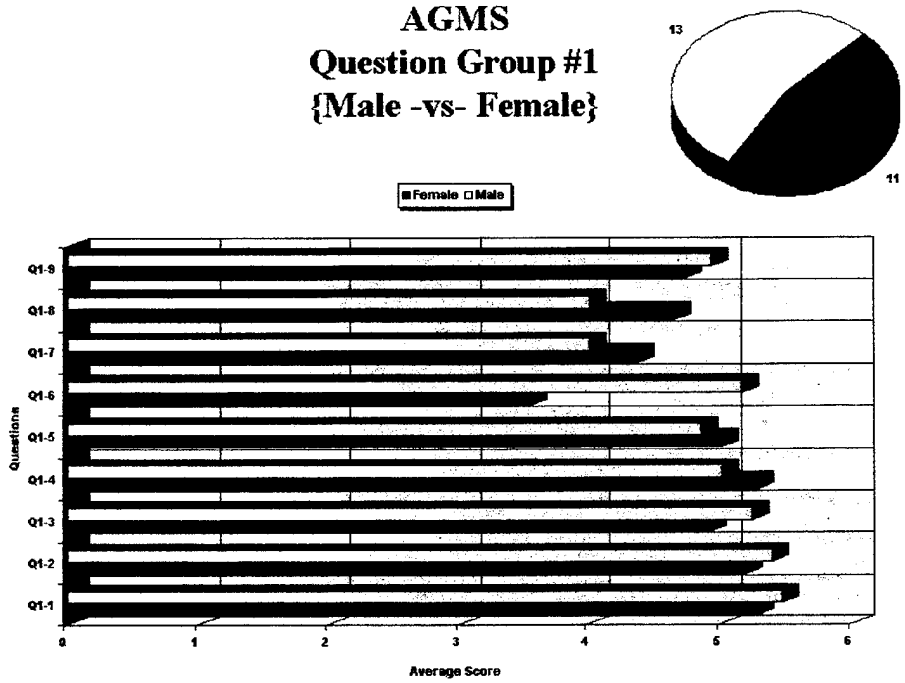


Figure 16: Example Analysis Presentation.

Once imported from the interface database, data are automatically formatted and sorted. Queries are simultaneously constructed based on the parameters stated during the application development. Calculations used to analyze the data are completed as part of the querying process. Analysis results are presented graphically beginning with a macro view of the overall assessment (Figure 16). Successive levels of detail can be viewed instantly by indicating which category or demographic feature is desired. This process is facilitated through the use of macros included in the MS Access program and logic statements designed during the application development.

VI. ANALYSIS AND DISCUSSION

A. INTRODUCTION

The purpose of this chapter is to analyze the data and feedback accumulated during the candidate assessment and prototype software testing, and to discuss issues concerning the applicability and effectiveness of the USAREUR Organizational Diagnostic Survey and the prototype self-assessment software. The chapter begins with the presentation of summarized data and qualitative responses from the surveys and interviews conducted by this researcher. These data and responses are then used to analyze the appropriateness of the individual items contained in the USAREUR Organizational Diagnostic Survey (modified) to measure the program health and customer satisfaction of a project management office. The chapter concludes with a discussion of issues surfaced during the prototype testing concerning the design and procedures of the USAREUR Organizational Diagnostic Survey (modified) and the prototype software application.

B. DATA

1. Survey #1

As previously addressed, the analysis of the data collected concerning the program health and customer satisfaction of the CCAWS and AGMS project offices is beyond the scope of this study and therefore will not be presented here. These data were collected to facilitate the candidate assessment and prototype software testing and to provide realistic data for use in the development of the data storage, analysis, and presentation application. Data recorded during the prototype testing will, however, be forwarded to the sponsoring organizations for their internal use.

2. Survey #2

The data for each individual item of survey #2 are presented in summarized form in Appendix F. The qualitative responses relating to these survey items are listed in Appendix G. Assessment items identified as questionable, that is revealing a less than 99 percent rating overall and a rating of less than 95 percent in one or more aspects, are listed in Table 3 below. Deficient aspects are indicated with an "X".

Item	Clarity	Conciseness	Ambiguity	Relevancy	Suitability	Scale
1.3				X		
1.6				X		
1.7	X	X	X	X		
1.8	X	X	X			
1.10	X		X			
2.2						X
2.3	X					
3.1	X					
3.3			X			
3.4	X					
3.5	X		X			
6.3	X					

Table 3: Questionable Assessment Items.

3. Survey #3

Survey #3 data concerning the candidate self-assessment are summarized in Table 4. The qualitative responses related to items A4 and A6 are listed in Appendix H.

Item	Mean	Max	Range	Std. Dev.	%	
A1a	1.77	100	2	0.48	88.5%	89.50%
A1b	1.81	100	1	0.39	90.50%	
A2a	(0.19)	0	2	0.45	84.00%	77.50%
A2b	1.42	100	2	0.66	71.00%	
A3	1.14	100	4	0.85	57.00%	
A4	Qualitative Response					
A5	45.30	90	105	16.82	50.33%	
A6	Qualitative Response					

Table 4: Survey #3 Data Summary.

4. Survey #4

Survey #4 data concerning the prototype software application are summarized in Table 5. The responses to items B6 and B7 are listed in Appendix H.

Item	Mean	Max	Range	Std. Dev.	%	
B1b	1.81	100	1	0.39	90.50%	
B2	0.91	50	1	0.29	91.00%	
B3	1.84	100	3	0.53	92.00%	
B4a	1.47	100	3	0.96	73.50%	78.49%
B4b	1.67	100	3	0.68	83.50%	
B5	0.00	0	0	0.00	100.00%	
B6	Qualitative Response					
B7	Qualitative Response					

Table 5: Survey #4 Data Summary.

5. Interviews

a. Project Manager

The project manager interview items are in Appendix I. Individual responses to the items are listed at Appendix J. These responses are summarized as follows:

(1) The participating project offices intend to use the unit self-assessment to:

- Evaluate the overall health of the organization.
- Establish a baseline for future comparisons.
- Pinpoint systemic problem areas within the organization.
- Establish organizational trends.

(2) The types of analyses most beneficial to the project mangers are:

- Trend analysis by major categories.
- Comparison of results by demographically significant subsets of the project office.
- Benchmarking against previous years results and against other project offices.

(3) The types of presentation output most beneficial to the project managers are:

- A slide show presentation, allowing the project manager to view the results of the assessment directly from the networked database and print selected analytical views.
- Statistical charts summarizing and comparing analyzed data.
- Bar charts summarizing and comparing analyzed data.
- Synopses of the qualitative response items.

(4) The project managers define "program health" as:

- The successful fielding and support of material to the soldier.
- Mission accomplishment.

- Personnel job satisfaction.
- Adequate personnel empowerment and resourcing.

(5) The project managers feel the unit self-assessment is, for the most part, focused on the indicators that determine the program health of the organization. The assessment needs to include focus on the following areas to be comprehensive:

- Products and services.
- External influences on the PMO.
- External and internal customer satisfaction.
- Integrated product teams.

(6) The project managers intend to survey 100% of their respective organizations using the recommended self-assessment instrument.

(7) The project managers feel the demonstrated self-assessment package will provide them with the necessary tools to identify weaknesses in their respective organizations and monitor their improvement.

b. Unit Facilitators.

The unit facilitator interview items are in Appendix K. Individual responses to the items are listed at Appendix L. These responses are summarized as follows:

(1) The facilitators expect an automated unit assessment to significantly enhance their unit facilitator role. They feel the assessment will reduce:

- Facilitator bias.
- The burden of analysis.
- The logistical burden associated with the assessment process.

(2) The facilitators do not expect to encounter substantial difficulties as a result of switching to

an automated assessment process. The areas in which they expect some difficulty are:

- Tailoring of automated analyses to detect demographic differences.
- Determination of who, by name, has not completed the assessment.

(3) The facilitators prefer to have the data analysis and presentation fully automated, with minimal facilitator input. Thus, enabling a consistent, pre-defined statistical package to be produced for each analysis.

(4) The facilitators choice of analyses and output match those of their respective project managers.

C. ANALYSIS

This section presents the analysis of the data and qualitative responses summarized above. The analysis focuses on the two major components of the proposed unit self-assessment package: The USAREUR Organizational Diagnostic Survey and the prototype software application.

1. The USAREUR Organizational Diagnostic Survey (modified)

The analysis of the USAREUR Organizational Diagnostic Survey is divided into four areas: Questionable assessment items; Instructions and procedures; Length and time required; and applicability to a project management office.

a. Questionable Assessment Items

Item 1.3. To what extent are the objectives of the Project Office realistic?

This item was rated as irrelevant. Participants rating this item as irrelevant can be grouped into two categories. Several participants stated that due to their position in the organization they were unfamiliar with the project office's objectives, thus they had no basis from which

to judge their realism. These participants generally felt that the objectives of the project office and this item do not apply to persons in their positions. The second category of participants rating this item as irrelevant stated that the objectives of the project office are, in effect, determined by management personnel and other entities external to the project office itself and therefore should not be addressed by an internal assessment of the project office.

Although it is imperative that all personnel within a given organization be familiar with that organization's objectives, as measured by item 1.2, it is clear that not all of these personnel are in a position to be able to determine the realism of these objectives. It is possible, however, for all personnel within a project office to judge the realism of the objectives of their individual working group, branch, or division, given the group's present resources and the objectives of the next higher organization. To this end, objectives for mission accomplishment should be formulated at every level within the organization. It is for this reason that the issue raised by the second group of participants above is invalid. This item's focus is on those objectives for mission accomplishment determined by the management within the project office. The survey item is, however, too general in scope to allow all personnel within the project office to respond accurately without speculation. Since the purpose of this survey is to elicit feedback from the entire organization, this item, as written, is irrelevant.

Item 1.6. I am satisfied with my role in setting organizational objectives.

This item was rated as irrelevant. Participants rating this item as irrelevant stated that persons of their position,

as well as many other positions in the organization, do not influence the development of organizational objectives.

Setting direction within an organization, to include establishing organizational objectives, is a function of management. Therefore, a majority of the individuals within a project office would not be expected to play a role in accomplishing this task. Since this survey is designed to apply to all personnel within the project office, this item is irrelevant.

Item 1.7. To what extent are the Project Office's objectives for mission accomplishment consistent with the demands of its environment?

This item was rated as unclear, wordy, ambiguous, and irrelevant. Participants rating this item as unclear, wordy, and ambiguous stated they did not understand the phrase "the demands of its environment" and therefore also did not understand what type of response was being solicited. Participants indicating the item was irrelevant stated the "objectives for mission accomplishment" did not pertain to person in their position within the organization.

The phrase "the demands of its environment" implies a potentially infinite number of variables. This phrase also presupposes that all personnel within the organization are familiar with the organization's environment and the demands placed on the organization by external entities. Thus, this item, as written, lacks sufficient definition to solicit a singular response and therefore is both unclear and ambiguous. As with item 1.3, this item requires the majority of personnel within the project office to speculate as to the appropriateness of the project office's objectives. As discussed above, many persons within the organization are not in a position to respond to items of this type with any

significant degree of accuracy, thus this question is also irrelevant.

Item 1.8. To what extent are the Project Office's objectives for mission accomplishment consistent with the availability of its resources?

This item was rated as unclear, wordy, and ambiguous. Participants rating the item in this manner stated they did not understand the phrase "the availability of its resources" and therefore also did not understand what an appropriate response should be.

This item, as in the case of item 1.7, presupposes knowledge of the project office's available resources and requires a stricter definition of the term resources to enable personnel within the organization to respond accurately. Thus, this item, as written, is unclear, wordy, and ambiguous.

Item 1.10. The strategy of the Project Office could be improved by:

This item was rated as unclear and ambiguous. Participants who indicated that this item was unclear or ambiguous were troubled by the word "Strategy". They either did not fully understand what an organizational strategy was or they were not familiar with the strategy of their respective organization.

This rating is understandable, given that this survey is intended for all members of the organization. Strategy development is clearly a function of management. Personnel other than management are therefore not expected to be in a position to comment on strategy improvement. All personnel, however, should be knowledgeable as to what the organization's strategies are. This item, although clear and unambiguous, is inappropriate for this survey.

Item 2.2. To what extent do your assigned tasks include work that you consider to be outside your area of responsibility?

This item and its answer scale were rated as inappropriate. Participants rating this item's answer scale as inappropriate stated the scale did not provide appropriate responses to answer the item. They suggested the item be reworded as a statement, using the Agree/Disagree scale. More importantly, this item was viewed by several leaders within the organization as a source of potential grievances due to its wording. For this reason alone the item is inappropriate.

Item 2.3. To what extent are your assigned task deadlines reasonable?

This item was rated as unclear. Participants rating this item as unclear felt the item lacked sufficient definition. One group of participants stated the item should be focused on normal or routine tasks, eliminating those tasks associated with the natural level of inherent crisis management associated with the project management discipline. Another group of respondents stated the word "reasonable" was not adequately defined.

Although there is a certain amount of crisis management involved in the normal operation of all organizations, there is not sufficient rationale to discount this fact in this items wording. In fact, it is this level of crisis management that the item is attempting to measure. To what extent does the management of the project office rely on crisis management techniques, rather than proactive planning? Second, "reasonable" is inherently defined as the participants opinion as to what is reasonable and therefore it would be constraining the survey participants by further defining this term. This item is clear as written.

Item 3.1. To what extent does the Project Office's present structure facilitate work?

This item was rated as unclear. The participants indicating this item was unclear stated that the word "work" was not adequately defined.

This researcher agrees that the word "work" in this context appears unbounded. This item should be rewritten to focus on the extent the project office's present structure facilitates or hinders the participants ability to accomplish his/her assigned tasks. This item, as written, is unclear.

Item 3.3. To what extent does the Project Office's present structure facilitate decision making?

This item was rated as ambiguous. Several participants indicated this item was ambiguous stating that the level of decision making being considered needs to be defined.

This researcher agrees that the level of decisions being considered is an important element to be included in this item. This item should focus at a level at which all personnel within the organization can respond to the item without speculation. This item, as written, is ambiguous.

Item 3.4. Our informal work structure complements the established formal structure.

This item was rated as unclear. Participants indicating this item was confusing did not understand the references to the "informal work structure" and "formal structure".

It is apparent to this researcher how these terms could be a source of confusion, given the structure and environment of the military project management office. Within the overall structure of the project office there are multiple formal and informal sub-structures. First, there is the

traditional line authority structure of the project office. This structure does not, however, include all personnel dedicated to the project. Many of the personnel directly supporting the project office are matrix personnel. That is, they are assets belonging to other organizations that are dedicated to and work within the project office. Each of these individuals also reports to superiors in their parent organization. Second, much of the work in the project office is accomplished within Integrated Product Teams (IPT). These IPTs are informal structures developed to facilitate the efficient interaction between all functional areas involved in the production of a particular product. Finally, there is usually an ad hoc structure developed by the workers in an organization that is used, as necessary, in lieu of the stated formal structure to accomplish required tasks in the most efficient manner. Depending on the position and parent organization of the survey participant it could be unclear to which formal or informal structure this item is referring. This item, as written, is unclear.

Item 3.5. To what extent are individual responsibilities defined in the Project Office?

This item was rated as unclear and ambiguous. Personnel indicating this item was confusing felt this item was too general and asked for information that cannot be obtained from personal knowledge.

This researcher agrees that this item solicits a speculated response. This item should be worded to refer only to the participant's responsibilities. This item, as written is unclear and ambiguous.

Item 6.3. To what extent is conflict dealt with openly and managed constructively in the Project Office?

This item was rated as unclear. Participants rating this item as unclear stated that the item was confusing because the types and level of conflict are undefined.

This researcher agrees that the types and levels of conflict being measured are critical components of the item. Within any organization there is a broad range of conflict types, such as personal conflicts, conflicting tasks, conflicts between superiors and subordinates, etc. The type of conflict and the level at which it occurs in the organization must be clearly defined to enable the survey participant to accurately respond to this item. This item, as written, is unclear.

b. Instructions and Procedures

The instructions provided on how to complete the assessment were relatively complete and clear to most of the survey participants. Of the participants indicating the instructions were incomplete, most referred to a lack of guidance in the use of the provided software and not the survey instrument itself. This is a separate issue discussed in the analysis of the prototype software. Those participants stating the instructions were confusing indicated that the reference to the types of items included in the survey were confusing. The survey instructions refer to items soliciting a qualitative response as "free" or "open" response items and items requiring the participant to select an appropriate response from a fixed set of responses as "fixed" response items. This shortcoming is easily reconciled by using more traditional terms, such as "short answer" and "multiple choice" to refer to the item types. Once the instructions were clarified, none of the participants encountered any significant difficulties associated with the survey procedures. Again, those difficulties that did surface were

connected to the use of the software and were not linked to the assessment instrument.

c. Length and Time Required

The candidate survey consisted of 74 items, compared to 66 items incorporated by the Self-assessment Guide for Organizational Performance and Customer Satisfaction. The majority of the survey participants indicated that the length of the survey was adequate to ensure a comprehensive examination of the organization's program health and customer satisfaction without requiring an excessive amount of time to complete. Several participants did indicate that they felt the survey contained too many items, however the time required to complete the survey was acceptable.

The average time required for each participant to complete the survey was 44 minutes. The 44 minute average time to complete the survey is inflated due to each participant providing feedback on the survey items as they completed the survey. This researcher estimates that an average of ten minutes of the time required for each participant to complete the survey was dedicated to providing this feedback. It is therefore estimated that the required time to complete this survey, on average, is 34 minutes. This is compared to an estimated time of 90 minutes necessary to complete the Self-assessment Guide for Organizational Performance and Customer Satisfaction.

Although the candidate survey contains eight items more than the Self-assessment Guide for Organizational Performance and Customer Satisfaction, it is significantly shorter and requires less time to complete than its predecessor. There are two reasons supporting this conclusion. First, although the Self-assessment Guide for Organizational Performance and Customer Satisfaction contains

only 66 items, the responses provided for these items are lengthy sentences or, in some cases, paragraphs. This requires the participant to dedicate a substantial amount of his/her time to read each response prior to answering the items. Highlighting this is the fact that the 66 items of the Self-assessment Guide for Organizational Performance and Customer Satisfaction span 44 pages of text, whereas the 74 items of the candidate assessment are covered in six pages. Second, the candidate assessment incorporates an automated approach, allowing the participant to quickly view the item, indicate his/her response and continue to the next item, whereas the Self-assessment Guide for Organizational Performance and Customer Satisfaction does not.

d. Applicability to a Project Management Office

The majority of the survey participants indicated that the candidate assessment, as a whole, is applicable to a project management office. These participants felt, however, that many of the survey items were not appropriate for persons of their position within the organization. The main reason cited for this observation was that the scope of these items were too broad and included elements outside of their purview. This researcher whole heartedly agrees with this observation. In fact, this observation applies to the majority of the items included in the assessment. This observation is addressed in detail in the discussion section of this chapter.

2. Prototype Software Application

The analysis of the prototype software application is divided into two areas: Instructions and procedures; and Ease of use and time required.

a. Instructions and Procedures

The majority of the survey participants indicated that the software instructions were comprehensive and clearly

stated. The only difficulty associated with the instructions involved identifying particular items as they actually appear within the software, based on their description in the instructions. This shortcoming is addressed in the first production version of the software by including the instruction within the application's on-line help and providing graphical examples of the items, screens, and other objects unique to the software application.

b. Ease of Use and Time Required

All of the survey participants, without exception, stated that the software application was "user friendly" and that they encountered only minor difficulties completing the survey using the application. All of the participants, except one, indicated that the Microsoft Windows environment was installed on their workstation and therefore the majority of the procedures and items incorporated into the software application were already familiar to them. The participants stated that the automating of the assessment significantly enhanced the overall assessment process, requiring them less time to complete the assessment than a manual system and providing them with increased flexibility and comfort.

D. DISCUSSION

The discussion of the issues related to the proposed unit self-assessment package, as in the analysis section, is focused on the packages two major components: The USAREUR Organizational Diagnostic Survey and the prototype software application.

1. The USAREUR Organizational Diagnostic Survey (modified)

a. Assessment Items

In addition to the items identified as questionable in the analysis section of this chapter, numerous other items

in the candidate assessment contain shortcomings identical to those identified with these items. These items fall into three categories:

- Items to which all participants cannot accurately respond without significant speculation because the item is focused at too high a level within the organization (i.e. project office rather than section) or the scope is unbounded.
- Items which requires participants to infer the opinions of other people within the organization.
- Items in which the subject matter limits meaningful responses to a select group of people within the organization.

The first category, items focused at too high a level within the organization, applies to a significant number of the items included in the candidate survey. Items within this category solicit generalized responses from participants that require them to draw conclusions about the entire organization. These items should be focused at the lowest organized level within the organization to allow participants to provide accurate responses concerning these items from a individual perspective, without speculation. Trends and conclusions concerning the entire organization are then revealed by combining these individual responses into an aggregate information database. Items included in this category are:

Item 1.2	Item 4.2	Item 6.8	Item 7.7
Item 1.9	Item 4.5	Item 6.9	Item 7.8
Item 2.8	Item 4.6	Item 7.1	Item 8.1
Item 2.9	Item 4.7	Item 7.2	Item 8.3
Item 3.1	Item 6.2	Item 7.3	Item 8.5
Item 3.10	Item 6.3	Item 7.4	Item 9.1
Item 3.11	Item 6.5	Item 7.5	Item 9.2
Item 4.1	Item 6.6	Item 7.6	Item 9.3

The CCAWS/AGMS Unit Self-assessment reflects adjustments made to these items with regard to the organizational level at which these items are focused.

The second category, items that require participants to infer the opinions of other people, includes:

Item 1.5	Item 3.8	Item 5.4	Item 6.4
Item 3.5	Item 4.3	Item 5.6	Item 6.7
Item 3.6	Item 4.4	Item 6.1	Item 8.4
Item 3.7			

These items have also been adjusted in the CCAWS/AGMS Unit Self-assessment to permit participants to respond to each item based on individual knowledge.

The final category above, items whose subject matter limit accurate responses to a select group of people, includes:

Item 1.3	Item 1.7	Item 3.3	Item 8.2
Item 1.4	Item 1.8	Item 5.1	Item 8.7
Item 1.6	Item 1.10		

These items do not meet the intent of the survey design and have been omitted from the CCAWS/AGMS Unit Self-assessment.

b. Functional Areas and Model

The USAREUR Organizational Diagnostic Survey (modified) evaluated during the prototype testing consisted of eight functional areas, described in Chapter IV, and a general category. Based on the qualitative responses gathered during the evaluation of the candidate assessment and from interviews conducted with the project and deputy project managers of the sponsoring organizations, it is evident that the candidate assessment, although a more appropriate solution than the Self-assessment Guide for Organizational Performance and Customer Satisfaction, does not effectively address all of the critical factors that determine the program health and customer satisfaction of a project management office. Specifically, the candidate assessment addresses two functional areas determined by the project managers to be inconsequential to the program health and customer

satisfaction of a project office and fails to address three additional areas, cited by these managers as critical factors.

The two areas recommended for deletion from the assessment were technology and rewards. Technology was said to be inconsequential because the sponsoring project offices are fully automated and there is no apparent weaknesses in this area. This researcher disagrees with this rationale for the following reasons. First, although each of the sponsoring project offices may be considered fully automated and void of shortcomings in this area at present, this assessment is designed to be conducted annually for an undetermined period. Given the speed at which technological advancements are forthcoming, the technological state at which these two organizations are assessed could significantly deteriorate from one period to the next. Second, the context in which technology is used by these managers and in the candidate assessment refers only to the equipment available to the project offices. In reality, technology encompasses not only this physical equipment, but also the basic methods and techniques used to maximize equipment usage. Therefore, the scope of this functional area should be broadened and the items within this area reviewed to reflect this definition of technology.

The rewards item group was recommended for deletion because rigid policies directed by authorities external to the project office limit the latitude of managers within the project office to effect change in this area. Although this is true, in part, leaders within these organizations retain the authority to ensure rewards are equitably distributed within these guidelines. These guidelines do, however, minimize this areas effect to attribute to the overall program health of the project office. Therefore, the critical items

remaining in this area can be merged into the people category and this area deleted from the assessment.

The factors critical to the program health and customer satisfaction of a project management office that were not addressed by the candidate assessment are: Outputs (i.e. products and services), the Integrated Product Team (IPT), and Customer Satisfaction.

Given the addition and deletion of the areas described above, a new model was developed depicting the factors critical to the assessment of program health and customer satisfaction of a project management office (Figure 17).

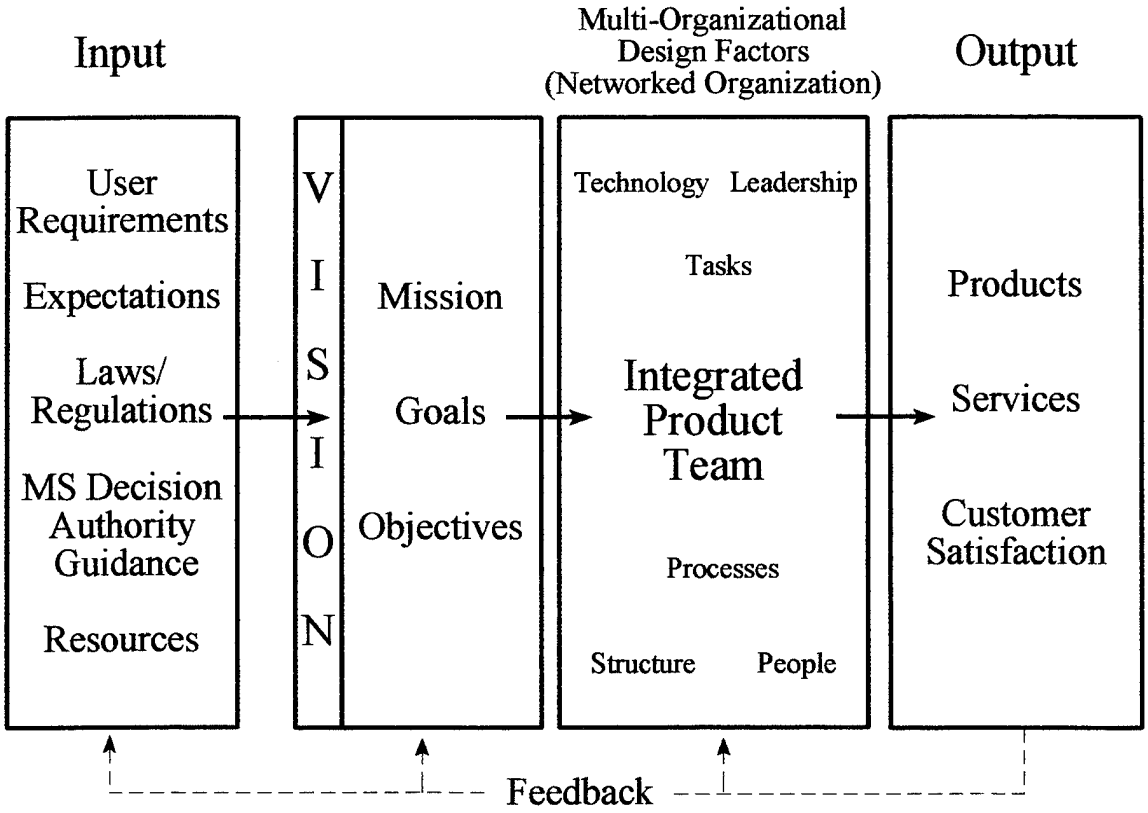


Figure 17: The CCAWS/AGMS Unit Self-assessment Model.

This model accurately depicts the inputs associated with the military project management environment and reflects the increased importance of the organizational vision and the incorporation of multi-organizational design factors used in the Integrated Product Team.

Comparing this model to that of the Harvard Business School, it is clear that in addition to accurately reflecting the critical factors that determine program health and customer satisfaction in a project office, the CCAWS/AGMS Unit Self-assessment model sufficiently addresses the organizational design factors identified as critical by the Harvard School of Business (Figure 18).

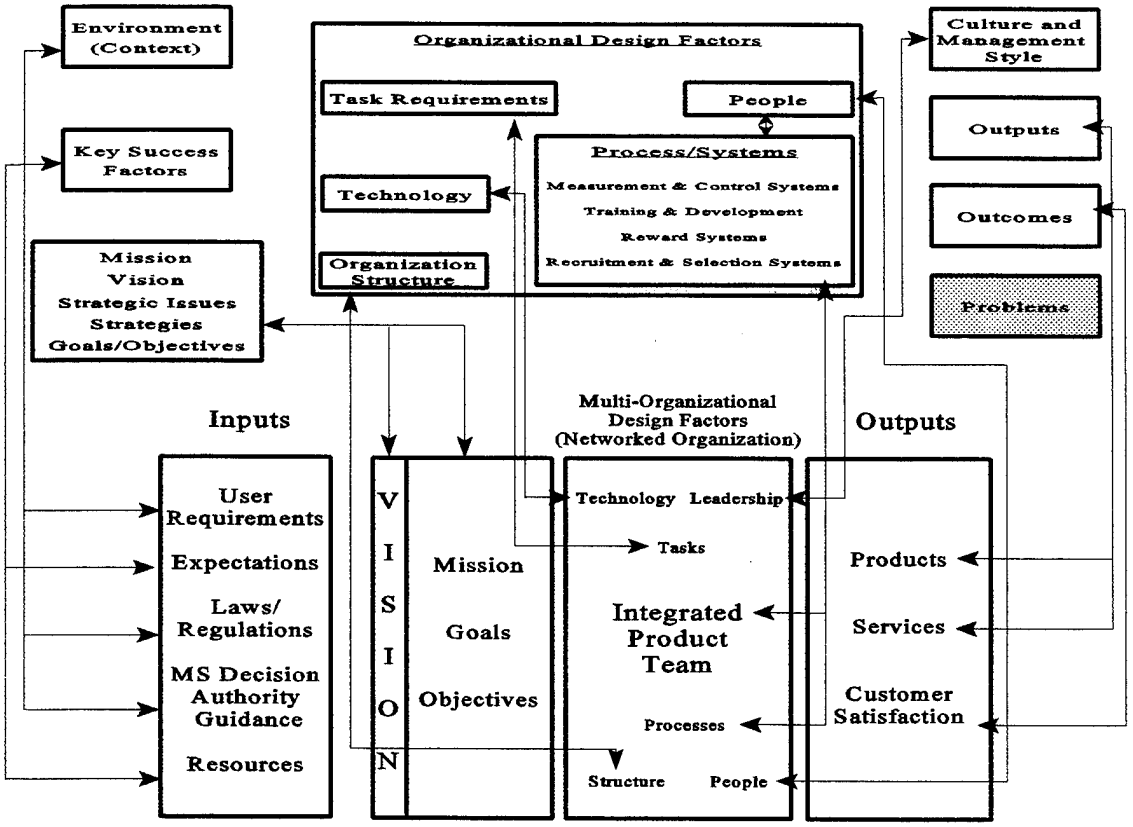


Figure 18: A Comparison of the CCAWS/AGMS Unit Self-assessment Model and the Harvard Business School Model.

c. Program Health and Customer Satisfaction

The candidate assessment instrument, in its final form, is appropriate and effective to measure the program health and internal customer satisfaction of a project management office. This instrument, however, does not sufficiently measure the satisfaction of customers external to the project office itself.

2. Prototype Software Application

a. Computer Resources

The prototype software application is compatible with the current computer resources used in the CCAWS and AGMS project offices. Both project offices are running International Business Machines (IBM) or compatible workstations. Each of these workstations has the equivalent of a 386DX-25 or faster Central Processing Unit (CPU) with a minimum of four megabytes of Random Access Memory (RAM). The workstations are operated by a Microsoft Disk Operating System (MS-DOS), version 5.0 or greater, in the MS Windows 3.1 or 3.11 environment. Monitors at these workstations contain video cards capable of supporting resolutions of 640x480 or 800x600 pixels. The minimum workstation requirements for use with the user interface application are: CPU, 386SX-20; RAM, MB; MS-DOS, version 5.0; MS Windows, version 3.1; video resolution, 640x480. Each of the sponsoring organizations use a Local Area Network (LAN) manufactured by the Novell corporation. The user interface is designed to operate on a Novell LAN, however, compatibility tests with the LANs in the CCAWS and AGMS project offices was not conducted as part of the prototype software evaluation.

The data storage, analysis, and presentation application is designed to operate within Microsoft Access,

version 6.0. This program is currently being used by both the CCAWS and AGMS project offices.

b. User Interface

The user interface application performed remarkably well during the prototype testing. The application compiled data from 50 respondents with no significant failures. There were, however, several minor shortcomings associated with the application that are characterized as normal occurrences during the beta testing of a new software application. These shortcomings and their solutions are discussed below.

(1) Method of Indicating Responses. At the time of testing, the user interface provided each respondent with two methods to indicate their response to fixed assessment items. The respondents could either drag the indicator up and down the answer scale using his/her pointing device (mouse) or perform the same maneuver using the arrow keys on the keyboard. During testing this researcher observed, however, that the first inclination of each respondent, with very few exceptions, was to attempt to indicate his/her response by pointing at the desired response itself with the pointing device. This was predominately the case, even though each respondent had read the software instructions detailing the two included procedures. As respondents attempted to indicate their responses in this fashion, to which the application did not respond, each became confused and either referred to the software instructions or prompted the researcher for assistance. Since one of the primary goals in developing the user interface application was to simplify the assessment process by providing a "user friendly" interface for data collection, this researcher modified the interface application to enable respondents to

indicate their responses by pointing at the desired response, as was their propensity to do so.

(2) File Structure. The user interface application at the time of testing consisted of ten separate executable software programs, a database control and nine functional areas, and their associated Dynamic Link Library (DLL) files. Although this arrangement simplified the packaging and transportation of the application, it created considerable problems in the functioning of the application. First, because each functional area was contained in a separate executable file, each time a respondent entered into a new functional area (e.g. Strategy to Task) a significant pause was encountered, approximately five seconds, as one executable program was opened and the other closed. These delays created considerable confusion with each respondent.

Second, since the database control function was located in a separate executable file than each functional area, difficulties were encountered identifying the correct database record within each functional area that data were to be written to or stored in. At the time of testing this was accomplished through the use of an external file, created by the database function, containing the respondent identification number. Each functional area, once opened, queried the contents of this file to determine the record in which the data were to be stored. Although this technique performed successfully during the prototype testing, the testing was conducted on a stand alone system. Once the application is loaded onto the organization's Local Area Network (LAN) this will not be the case. When the application is used on a LAN there is a high probability that two or more respondents will access the application at the same time. If this situation occurs, the first respondent to complete

entering his/her demographic data and begin the assessment will have his/her respondent number recorded to the external file. Again, this file is used by successive programs to determine his/her record in the database. Once the second person begins the assessment, however, the application will record his/her respondent identification number to the external file, overwriting the first person's data. After that time when the first person moves from one functional area to another, the external file will provide the current or updated information back to the application, thus data entered by the first person would be inadvertently stored in the second person's database record, destroying both sets of data.

Each of the above surfaced anomalies were corrected by restructuring the application's program files. The application's first production version consists of one executable file, containing both the database control and all functional areas, and its associated DLL files. This structure allows a seamless transition from one functional area to the next and enables the database function to accurately track the respondents record identification number throughout the assessment process.

(3) Exporting Data. One of the sponsor's automation requirements was that the recommended software application be compatible with the existing computer resources available within their organizations. Since the database function included in Novell's AppWare development program stores data to a unique database file, it was essential to export data from this file to a common or standard format. Of the standard data formats available, the two most common are the comma delimited and the tab delimited. The comma delimited format uses commas to separate data elements within each data record. The tab delimited performs the same

operation using tabs. Data stored in either of these two formats can be readily imported into Microsoft Access and Excel, used by the sponsoring organizations, or a number of other popular database, spreadsheet, and analysis programs. Of these two formats this researcher chose the comma delimited format for use in the prototype application. During testing, however, it was noticed that many of the respondents preferred the use of commas to clarify statements when answering the open response items. When exporting these data into a comma delimited data format, the application interprets the commas internal to each open response item as the beginning of a new response (i.e. a response including three commas is interpreted as four responses). Therefore, when the data are imported into the storage, analysis, and presentation application, all responses following an open response with internal commas are misaligned by the number of commas included in the defective response. This occurrence would corrupt the data included in that particular record and invalidate any analyses performed on the entire set of data.

This anomaly has also been corrected in the first production version of the software application. The production version incorporates the tab delimited data format to export data for use in the data storage, analysis, and presentation application. This format will enable respondents to use any and all characters in their open item responses without interfering with the data export function.

(4) Next/Previous Item Function. At the time of testing, the user interface application incorporated push buttons to enable participants to move from one assessment item to the following item. During testing, a majority of the participants revealed a strong desire to return to items answered previously to review or compare their answers. In

response to this feedback, push buttons have been inserted into each item screen to allow participants to move both forwards and back through the available items.

(5) Resume Function. The user interface application incorporates a resume function that allows the participant to discontinue the assessment and finish the same assessment at a later time. At the time of testing, this function required that the participant had written down or remembered his/her respondent identification number, assigned at the beginning of the assessment. This function was also limited in the fact it would only allow participants to return to the first item in the desired functional area. During testing, it was revealed that, without prompting by the researcher, participants did not understand the significance of remembering their respondent identification number until after they attempted to resume the assessment. The production version of the software application addresses this shortcoming by including a screen that appears to the participant when he/she attempts to terminate the assessment process at any point other than the final item. This screen will provide the participant with his/her respondent identification number and the number of the last item completed and prompt the participant to record this information for later use.

(6) Demographic Lists. The user interface application queries each participant for demographic and other essential information using a set of fixed "drop down" lists. This information is used by the analysis and presentation application to group data for analytical purposes. Listings used in the application were compiled using information provided by the CCAWS and AGMS project offices. The categories represented are: Year; Organization; Office; position; time in organization, office, position; Age; Sex;

Military/Civilian; Rank/Grade; and Education level. Despite the attempt to compile a comprehensive listing of the applicable items within each of these categories, it was revealed during the prototype testing that some of the lists were incomplete. An attempt at a one time fix to this problem would most probably also end in failure. Therefore, the production version of the user interface application incorporates a function that will enable the unit facilitator to add items to each of these lists during "run time", as necessary.

c. Data Storage, Analysis, and Presentation

The data storage, analysis, and presentation application was not available during the prototype software testing in June 1995. This application was, however, demonstrated for the CCAWS Project Manager in August 1995. Results of this demonstration and comments from the unit facilitators and the deputy project managers from both organizations as to the design of this application are discussed below.

(1) Data Storage. The sponsors' requirements to automate the assessment process included a data storage function capable of storing collected data for a period of not less than five years. Both the user interface and the data storage, analysis, and presentation applications meet this requirement. The user interface, although designed for temporary storage of data during the assessment process, is limited only by the number of years recorded in the year list within the application. Since this list can be updated by the unit facilitator, as necessary, the capacity of the user interface to store data for the purposes of the unit self-assessment is unlimited. The application, as delivered, provides an initial capability to store 12 years of data. The

data storage, analysis, and presentation application is designed for the permanent storage of collected data. Its capacity to accomplish this task, as delivered, is unlimited. It is important to note, however, that data modified directly from within the data storage, analysis, and presentation application after they are initially stored must be saved to a separate file. Although these data can still be used, once data from the next assessment iteration are imported from the user interface, these data will be overwritten and all changes to the data made in the data storage, analysis, and presentation application will be lost. This function was purposely incorporated to purge the database of duplicate records. The function does not compare data records to locate duplicates, rather it keys on the dates the data were entered. Each data record is date stamped as it is imported into the permanent database. As new data are imported, the application purges all records with a date stamp that is earlier than the import date. This process does not permanently erase previous years data, as they were originally entered, because these data are again imported into the data storage, analysis, and presentation application along with the new data records.

(2) Analysis. The data storage, analysis, and presentation application is designed to automatically format, store, query, and perform calculations on data as they are imported into the permanent database. Calculations performed on the data by the analysis function, as delivered, meet the requirements of the CCAWS and AGMS Project Managers. These calculations, however, were designed from within the Microsoft Access database program and can be altered to perform additional analyses, as necessary. The analyses currently performed by the analysis function are:

- The percentage of actual responses of each functional category, by organization and year, to the maximum possible response.
- The average response for each assessment item, by year, organization, office, and demographic category.
- Groups qualitative responses by year, organization, office, and demographic category.

These calculations are then compared to and against each other to provide the manager with an in-depth analysis of each item measured by the self-assessment.

(3) Presentation. The presentation function of the data storage, analysis, and presentation application is designed to graphically present analyses performed by the analysis function in a manner that provides useful feedback and information to the project office's management. At the time of testing, this function was designed to print a "canned" or fixed set of graphs, tables, and charts to be used by management personnel. During the demonstration of the data storage, analysis, and presentation application, however, the CCAWS Project Manager commented that the presentation function would be more useful if it allowed managers to view these graphs, tables, and chart at their workstation and print only those items that they deemed significant. The production version of the data storage, analysis, and presentation application incorporates this suggestion, allowing each presentation item to be viewed on screen and printed, as necessary. The presentation graphics are structured in a hierarchical fashion. As the database application is opened, the manager is presented with an overall assessment of the organization depicting each year the assessment instrument has been used. The manager is provided a series of push buttons in the screens margins allowing him/her to choose the year he/she desired to examine. Once a year has been selected, the

graph depicting that year by functional category is presented to the manager. This procedure is then repeated, each level providing increased detail, until completed. Presentation graphics depicting six levels of detail are included in the application (i.e. Item 1.1 by year, organization, office, position, and demographic category) as delivered.

VII. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

The purpose of this chapter is to draw conclusions concerning the effectiveness of the CCAWS/AGMS Unit Self-assessment and the prototype software application to measure the program health and customer satisfaction of a military project management office, based on the issues and findings revealed in the data analysis and discussion. The chapter is divided into five sections: Conclusions drawn from the analysis and discussion; recommendations for implementing the CCAWS Unit Self-assessment and the prototype software application; thesis contributions; research limitations discovered during the data analysis; and recommendations for further study.

B. CONCLUSIONS

This study addresses the primary research question:

Does the proposed unit self-assessment package satisfy the sponsors' requirement to efficiently and effectively assess and track program health and customer satisfaction?

The proposed unit self-assessment package, consisting of the CCAWS/AGMS Unit Self-assessment and the Unit Self-assessment software, version 1, do provide the military project manager with the tools necessary to efficiently and effectively assess the program health and internal customer satisfaction of a project management office. The CCAWS/AGMS Unit Self-assessment does not, however, satisfy the sponsors' requirement to assess the external customers' satisfaction with the products and services provided by the project office.

This thesis also sufficiently addresses each subsidiary question listed below:

1. **Does the proposed assessment address and correct the deficiencies of the Self-assessment Guide for Organizational Performance and Customer Satisfaction, identified by the sponsors' management team and users?**

The CCAWS/AGMS Unit Self-assessment provides enhanced solutions to each of the problems identified by the management teams and personnel from the CCAWS and AGMS Project Management Offices. Specifically, the CCAWS/AGMS Unit Self-assessment addresses improvements in the following areas:

a. Applicability of Assessment Items

All of the items encompassed within the CCAWS/AGMS Unit Self-assessment are applicable to a military project management office. Items determined as questionable by CCAWS and AGMS personnel during the candidate assessment evaluation were either modified to fit the project management environment or discarded.

b. Item Wording and Content

The items in the CCAWS/AGMS Unit Self-assessment are worded in a manner that is both clear and understandable by all members of a military project office. Questionable items during the candidate assessment evaluation in this regard were either simplified or reworded entirely to ensure each participants full understanding.

c. Assessment Length

The CCAWS/AGMS Unit Self-assessment's length is sufficient to ensure a comprehensive evaluation of the program health and internal customer satisfaction of a military project management office, without requiring an excessive amount of time for each participant to complete. The average time for each participant to complete the candidate assessment will be 34 minutes, as compared to an estimated 90 minutes to

complete the previous Self-assessment Guide for Organizational Performance and Customer Satisfaction.

d. Target Audience

The items within CCAWS/AGMS Unit Self-assessment are appropriate to solicit an accurate response from all personnel within a military project management office. Items in which the subject matter or organizational level restricted the ability of all personnel to provide an accurate response, based on their personal knowledge were either reduced in scope to enable all personnel to respond or eliminated from the assessment.

e. Qualitative Feedback

The CCAWS/AGMS Unit Self-assessment enables each participant to provide both quantitative and qualitative feedback in each evaluated category, as opposed to the Self-assessment Guide for Organizational Performance and Customer Satisfaction, which incorporates qualitative feedback by means of a consensus-based management approach.

2. Is the proposed software program an effective method to administer the proposed assessment?

The independently developed prototype software application is an effective method of automating the unit self-assessment process and administering the CCAWS/AGMS Unit Self-assessment. The software has proven effective in reducing the overall time associated with the assessment process by simplifying the activities of both the assessment participants and the designated unit facilitators. The average time for each participant to complete the candidate assessment using the prototype software will be 34 minutes, as compared to an estimated 90 minutes to complete the Self-assessment Guide for Organizational Performance and Customer Satisfaction using manual procedures. This amounts to a savings of 93⅓ man-hours, in a project office of 100 assigned

personnel, per assessment iteration. The software application's analysis and presentation function instantaneously performs the calculations required to analyze the collected data, simultaneously formatting the analyzed data into statistically relevant charts and graphs for presentation of the analysis. This procedure, accomplished manually, is estimated to take one person a full eight hour work day to complete. Thus, the prototype software application is estimated to reduce the overall assessment process time by 506⅔ man-hours, over a five year period.

The analysis of the prototype software application also addresses the following sponsor automation requirements:

a. Compatibility with Existing Computer Resources

The prototype software application is fully compatible with the current hardware and software configurations within the CCAWS and AGMS Project Offices. The minimum system specifications of the LANs and computer workstations in each of the project offices are sufficient to enable the installation and operation of the prototype software application. Programs within the prototype application are specifically designed to operate from within, or interact with, Microsoft's Access database program, which is used by both the CCAWS and AGMS Project Offices.

b. User Friendly

Based on the responses from the CCAWS and AGMS participants in the prototype software testing, this researcher concludes that the application is "user friendly". During this testing, none of the participants encountered any significant difficulties related to the use of the software application. Most of the participants stated that the software environment, and many of the objects and operators were already familiar to them. This is credited to the fact

that the software incorporates the use of the Microsoft Windows environment, used in existing applications within both the project offices. For those objects that are unique to the prototype application, participants of the prototype testing were observed during the evaluation process to determine their initial reactions to these items. The data collected from these observations were then used to adjust the initial prototype, aligning the commands activating the application's functions to correspond with the participants' inclinations to activate them, thus further enhancing the "user friendliness" of the application.

c. Accessibility

The CCAWS/AGMS Unit Self-assessment is easily accessed by all members of the CCAWS and AGMS project offices. The assessment software, once installed, is located on the organization's LAN. Each workstation within the organization connected to this network enables the assessment participants unrestricted access to the application's user interface function.

3. Does the proposed unit self-assessment package provide project managers with the information and tools necessary to track and improve program health and customer satisfaction?

The recommended self-assessment package, consisting of the CCAWS/AGMS Unit Self-assessment and the prototype software application provides the project office's management personnel with sufficient information and adequate tools to evaluate, monitor, and improve the program health and internal customer satisfaction of the project office. The analysis of feedback collected during the candidate assessment evaluation and the prototype software testing concerning the overall assessment package addresses the following items:

a. Data Analysis

The types and depth of the analyses incorporated by the unit self-assessment package are sufficient to meet the sponsors' requirements to generate statistically relevant data that provide meaningful feedback concerning the status of the program health and internal customer satisfaction of the project office.

b. Data Presentation

The unit self-assessment package incorporates the use of computer generated charts and graphs to present the results of generated feedback and analyses in a manner that is clear, concise, and useful to the project office's management team. These charts and graphs can be either viewed on screen from any available workstation connected to the organization's LAN or printed to support additional analyses, discussion, or other purposed as desired by management.

c. Data Storage

The unit self-assessment package exceeds the sponsors' requirement to store collected data for a period of not less than five years. The assessment application is capable of storing data collected by the assessment process for an unlimited period. If, however, data are accumulated for a period greater than the five year requirement, this retention of excess data may cause the presentation of analyses to become confused and cluttered and may also result in a noticeable decrease in the speed at which these charts and graphs are displayed.

C. RECOMMENDATIONS

Efficiency in the acquisition of major defense systems is of paramount importance, given today's environment of declining budgets and Congressional and public skepticism.

To achieve this efficiency, the project office, as the responsible agency for such acquisitions, must in turn perform its designated functions both effectively and efficiently. This can only be accomplished by establishing systems within the program structure to assess, monitor, and improve the critical factors that determine the efficiency and the effective operation of the project office. The two most important indicators reflecting the efficiency and effectiveness of the project office are program health and customer satisfaction. To this end, this study recommends the following items:

1. Conduct Periodic Assessments Using the CCAWS/AGMS Unit Self-assessment Package

The CCAWS/AGMS Unit Self-assessment package, consisting of the CCAWS/AGMS Unit Self-assessment and the prototype software application, is both an effective and efficient method to measure the program health and internal customer satisfaction of a project management office. Assessments should be conducted semi-annually using this automated assessment instrument to identify and monitor areas needing improvement with respect to the critical factors that determine the program health and internal customer satisfaction of the project office.

2. Conduct Periodic Reviews of the CCAWS/AGMS Unit Self-assessment Functional Areas and Items

From time to time occurrences may arise in which the strategy, goals, objectives, priorities, or functions of the project office may change due to external influences or as the result of internal initiatives. To ensure the accurate measurement of the critical factors that determine the program health and internal customer satisfaction of the project office, the assessment instrument used to perform this measurement should be modified to reflect these changes, as

necessary. To this end, the CCAWS/AGMS Unit Self-assessment should be reviewed annually to ensure critical changes in the functioning of the project office are reflected in a timely manner.

3. Institute a Separate Assessment Focusing on Customer Satisfaction

As stated earlier, one of the two most important indicators of the efficient and effective functioning of the project management office is customer satisfaction. The CCAWS/AGMS Unit Self-assessment, however, measures only the customer satisfaction internal to the project office and does not address the level of satisfaction experienced by the project office's external customers. Given the importance of this factor, an additional assessment instrument should be designed for the purpose of measuring this factor. This assessment, once developed, should be conducted using the existing prototype software application recommended by this study.

D. CONTRIBUTIONS

This thesis provides the project manager with a viable model depicting the critical organizational design factors impacting on the program health and internal customer satisfaction of the military project office. This study also provides the project manager an implementing instrument, based on the above model, with which to assess the level of program health and internal customer satisfaction of the project office. Finally, this research effort has produced an independent software application, specifically designed to automate the self-assessment process within a military project management office which will significantly reduce the man-hours associated with the self-assessment process.

E. RESEARCH LIMITATIONS

This section describes the limitations concerning this research effort surfaced during the candidate assessment evaluation and the prototype software application testing. The items listed here are in addition to those previously discussed in Chapter I of this thesis.

1. Reliability and Validity of Assessment Items

The CCAWS/AGMS Unit Self-assessment is a pilot instrument. Many of the items used in the assessment are extractions or modifications from the USAREUR Organizational Diagnostic Survey (modified). These items have not been tested to determine their reliability or validity to measure the factors with which they have been grouped. They are, however, deemed to have face validity, based on responses from various personnel with longevity in the project management discipline. Additionally, items which are included in factor areas that were added based on feedback acquired during the candidate assessment evaluation have not been evaluated and therefore cannot be said to contain face validity. This limitation is applicable to those items within the customer satisfaction, integrated product team, and products/services functional areas.

2. Software Compatibility

The prototype software application is designed to operate effectively across the organization's LAN. The documentation supporting the development of the prototype application has confirmed its compatibility with the types and brands of LANs used in both the CCAWS and AGMS project offices. A physical test, however, to verify the application's compatibility with the LANs was not conducted due to time constraints and the candidate assessment evaluation and software testing methods chosen by this researcher.

F. RECOMMENDATIONS FOR FURTHER STUDY

1. CCAWS/AGMS Unit Self-assessment Item Reliability and Validity Testing

The assessment instrument recommended by this study, the CCAWS/AGMS Unit Self-assessment, contains face validity only, based on the expert opinions of personnel with longevity in the field of project management, and has not been subjected to any form of psychometric testing or evaluation. A study of the reliability and validity of the items incorporated in the CCAWS/AGMS Unit Self-assessment will confirm or deny the effectiveness of these items to accurately measure the program health and customer satisfaction of a project management office.

2. Customer Satisfaction Survey Development

The CCAWS/AGMS Unit Self-assessment provides a means with which to measure the program health and internal customer satisfaction of a project management office. This instrument does not, however, address the sponsors' requirement to measure the external customers' level of satisfaction with the products and services delivered by the project office. Research in this area would result in the development of an assessment instrument designed for use by the project management office to measure the satisfaction of its external customers.

APPENDIX A: THE USAREUR ORGANIZATIONAL DIAGNOSTIC SURVEY (MODIFIED)

Group: 1. Strategy (Mission - Goals - Objectives)

1.1 - To what extent do you understand the mission of the Project Office? **(Scale 1)**

1.2 - To what extent do you understand the objectives of the Project Office? **(Scale 1)**

1.3 - To what extent are the objectives of the Project Office realistic? **(Scale 1)**

1.4 - To what extent do the objectives of the Project Office support the goals of Program Executive Office? **(Scale 1)**

1.5 - To what extent are the people in the Project Office committed to achieving its objectives? **(Scale 1)**

1.6 - I am satisfied with my role in setting organizational objectives. **(Scale 2)**

1.7 - To what extent are the Project Office's objectives for mission accomplishment consistent with the demands of its environment? **(Scale 1)**

1.8 - To what extent are the Project Office's objectives for mission accomplishment consistent with the availability of its resources? **(Scale 1)**

1.9 - To what extent does the work actually performed support the Project Office's stated objectives? **(Scale 1)**

1.10 - The strategy of the Project Office could be improved by: **(open)**

Group: 2. Task

2.1 - I know what tasks I am responsible for accomplishing. **(Scale 2)**

2.2 - To what extent do your assigned tasks include work that you consider to be outside your area of responsibility? **(Scale 1)**

2.3 - To what extent are your assigned task deadlines reasonable? **(Scale 1)**

2.4 - To what extent does the accomplishment of your duties depend on the coordinated input of other people? **(Scale 1)**

2.5 - To what extent are you able to plan your activities for the following week? **(Scale 1)**

2.6 - To what extent do your activities occur as you have them planned? **(Scale 1)**

2.7 - I have sufficient authority to accomplish my assigned tasks. **(Scale 2)**

2.8 - To what extent do the Project Office's procedures hinder task accomplishment? **(Scale 1)**

2.9 - Task accomplishment in the Project Office could be improved by: **(open)**

Group: 3. Structure

3.1 - To what extent does the Project Office's present structure (the way people are divided up to do work) facilitate work? **(Scale 1)**

3.2 - To what extent does the Project Office's present structure facilitate the flow of information? **(Scale 1)**

3.3 - To what extent does the Project Office's present structure facilitate decision making? **(Scale 1)**

3.4 - Our informal work structure complements the established formal structure. **(Scale 2)**

3.5 - To what extent are individual responsibilities defined in the Project Office? **(Scale 1)**

3.6 - To what extent is the accountability for final products clear? **(Scale 1)**

3.7 - To what extent are people who are responsible for task accomplishment provided the necessary resources? **(Scale 1)**

3.8 - To what extent do people who are responsible for task accomplishment have the necessary authority? **(Scale 1)**

3.9 - To what extent are there barriers to the lateral flow of information in the Project Office? **(Scale 1)**

3.10 - To what extent is necessary information passed up and down the chain of command? **(Scale 1)**

3.11 - To what extent do the policies of the Project Office hinder mission accomplishment? **(Scale 1)**

3.12 - The way we are divided up to do things and the procedures we follow could be improved by: **(open)**

Group: 4. People

4.1 - The people in the Project Office have the skills and knowledge necessary to accomplish their assigned tasks. **(Scale 2)**

4.2 - The people in the Project Office clearly express their knowledge of and support for the Project Office's objectives. **(Scale 2)**

4.3 - Personnel in the Project Office understand their jobs and how they contribute to the overall organizational effort. **(Scale 2)**

4.4 - There is a high degree of personal commitment to the Project Office. **(Scale 2)**

4.5 - The people in the Project Office are warm and friendly toward each other. **(Scale 2)**

4.6 - The Project Office is seen as a good place to work because its people are treated right. **(Scale 2)**

4.7 - To what extent does the structure of the Project Office help people as they do their work. **(Scale 1)**

4.8 - The following things need to be done in order to improve the fit between the kind of people we now have and the kind we ought to have: **(open)**

Group: 5. Rewards

5.1 - To what extent are rewards in the Project Office contingent upon results rather than tenure or rank? **(Scale 1)**

5.2 - The criteria for receiving rewards are clear to me. **(Scale 2)**

5.3 - To what extent do you understand the performance standards of the Project Office? **(Scale 1)**

5.4 - To what extent do supervisors in the Project Office inform their subordinates of their duty performance? **(Scale 1)**

5.5 - To what extent are you satisfied with the award system in the Project Office. **(Scale 1)**

5.6 - To what extent does the reward system in the Project Office motivate people to achieve better results. **(Scale 1)**

5.7 - The reward system in the Project Office could be improved by: **(open)**

Group: 6. Processes

6.1 - Communication is good throughout the Project Office. (i.e. the people know what is going on). **(Scale 2)**

6.2 - Coordination is good throughout the Project Office. **(Scale 2)**

6.3 - To what extent is conflict dealt with openly and managed constructively in the Project Office? **(Scale 1)**

6.4 - To what extent are clear individual objectives and performance criteria established for each person in the Project Office? **(Scale 1)**

6.5 - Decisions are made at the most appropriate level in the Project Office. **(Scale 2)**

6.6 - To what extent do the formally established policies and procedures in the Project Office match what people actually do? **(Scale 1)**

6.7 - To what extent do people in the Project Office understand which decisions they can make themselves and which ones must involve other people? **(Scale 1)**

6.8 - The informal power structure of the Project Office complements the formal structure. **(Scale 2)**

6.9 - The processes of the Project Office (communication, decision making, conflict management, individual role clarification) could be improved by: **(open)**

Group: 7. Leadership

7.1 - To what extent does the leadership of the Project Office provide clear guidance on tasks that must be accomplished? **(Scale 1)**

7.2 - To what extent is the leadership of the Project Office proactive (focused on the future) rather than reactive? **(Scale 1)**

7.3 - The leadership of the Project Office demonstrates that they trust me to do my job well. **(Scale 2)**

7.4 - The informal leaders in the Project Office complement the formal leadership. **(Scale 2)**

7.5 - To what extent is the leadership of the Project Office respected by the people in the Project Office? **(Scale 1)**

7.6 - To what extent are the leaders of the Project Office aware of what is going on "in the trenches" of the Project Office? **(Scale 1)**

7.7 - The leaders in the Project Office are genuinely people oriented. **(Scale 2)**

7.8 - The leadership of the Project Office could be improved by: **(open)**

Group 8. Technology

8.1 - To what extent is the equipment of the Project Office (computers, word processors, copiers, etc.) sufficient to accomplish its mission? **(Scale 1)**

8.2 - To what extent does the Project Office's budget reflect the funds necessary to purchase needed equipment? **(Scale 1)**

8.3 - The Project Office makes full use of the equipment it does have. **(Scale 2)**

8.4 - To what extent are personnel in the Project Office trained in the proper use and maintenance of their equipment? **(Scale 1)**

8.5 - To what extent is routine, repetitive work in the Project Office automated? **(Scale 1)**

8.6 - Our management information system (MIS) supports the Project Office rather than vice versa. **(Scale 2)**

8.7 - To what extent is additional equipment and timely external technical support available? **(Scale 1)**

8.8 - The technical support of the Project Office can be improved by: **(open)**

Group: 9. General

9.1 - The things I like most about the Project Office are: **(open)**

9.2 - The things I like least about the Project Office are: **(open)**

9.3 - If I were in charge of the Project Office, I would: **(open)**

Response Scales

Scale 1	Value	Scale 2
Totally	◂ 6 ▸	Strongly Agree
Substantially	◂ 5 ▸	Agree
Reasonably	◂ 4 ▸	Slightly Agree
Moderately	◂ 3 ▸	Slightly Disagree
Barely	◂ 2 ▸	Disagree
None	◂ 1 ▸	Strongly Disagree
Don't Know	◂ 0 ▸	Don't Know

APPENDIX B: THE USAREUR ORGANIZATIONAL DIAGNOSTIC SURVEY

Group: 1. Strategy (Mission - Goals - Objectives)

1.1 - I understand the strategy (mission, goals, objectives)of this organization.

1.2 - The organization has a set of realistic objectives which support the goals of the next higher organization.

1.3 - This organization's strategy will project the organization into the future in the most effective manner.

1.4 - There is a high degree of commitment to this organization's mission and objectives.

1.5 - I am satisfied with my role in setting organizational objectives.

1.6 - This organization's strategy for mission accomplishment (link between mission, goals, objectives) is consistent with the demands of its environment and resources.

1.7 - The work actually done in this organization matches that dictated by its strategy.

1.8 - The strategy of this organization could be improved by:

Group: 2. Task

2.1 - I know what tasks I am responsible for accomplishing.

2.2 - Most of the tasks I am assigned fall within what I consider my area of responsibility.

2.3 - The suspense dates associated with most of my assigned tasks are reasonable.

2.4 - My task accomplishment is usually dependent upon input from other people.

2.5 - I can usually plan ahead what my tasks for the following day will be.

2.6 - I have enough authority to accomplish my assigned tasks.

2.7 - Our procedures and management practices facilitate task accomplishment.

2.8 - Task accomplishment in this organization could be improved by:

Group: 3. Structure

3.1 - Our present structure (the way we are divided up to do work -- the wiring diagram) facilitates work, information flow, and decision making.

3.2 - Our formal work structure is the same as our informal structure.

3.3 - There is a clearly understood definition of who does what within this organization.

3.4 - Accountability for final products is clear.

3.5 - People who are responsible for task accomplishment have the necessary resources and authority.

3.6 - Information flows easily across boundaries in this organization.

3.7 - Our rules and policies help us get the job done.

3.8 - The way we are divided up to do things and the procedures we follow to do them could be improved by:

Group: 4. People

4.1 - The personnel in this organization have the skills and knowledge necessary to accomplish their assigned tasks.

4.2 - The people in this organization clearly express their knowledge of and support for the organizational strategy.

4.3 - Personnel in this organization understand their jobs and how they contribute to the overall organizational effort.

4.4 - There is a high degree of personal commitment to this organization.

4.5 - Organizational members are warm and friendly toward each other.

4.6 - This organization is seen as a good place to work because it treats its people right.

4.7 - The structure/process arrangements in this organization help people as they do their work.

4.8 - The following things need to be done in order to improve the fit between the kind of people we now have and the kind we ought to have:

Group: 5. Rewards

5.1 - Rewards in this organization are contingent upon results rather than tenure or rank.

5.2 - The criteria for receiving rewards are clear to me.

5.3 - Performance standards for individuals in this organization are clear to all concerned.

5.4 - It is easy to find out how you are doing in this organization.

5.5 - I am satisfied with the award system in this organization.

5.6 - The reward system supports the people in their desires.

5.7 - The present reward system motivates people to achieve better results.

5.8 - The reward system in this organization could be improved by:

Group: 6. Processes

6.1 - This organization has good lateral communication (i.e. the people know what is going on).

6.2 - Conflict is dealt with openly and is managed constructively in this organization.

6.3 - Clear individual objectives and performance criteria are established for each position in this organization.

6.4 - Decisions are made at the most appropriate level in this organization.

6.5 - Our formally stated methods and practices match what people actually do.

6.6 - People in this organization understand which decisions they can make and which ones must involve others.

6.7 - The formal power structure is the same as the informal power structure.

6.8 - The processes of communication, decision making, conflict management, and individual role clarification could be improved by:

Group: 7. Leadership

7.1 - The leadership of this organization provides us with sufficient clear guidance on tasks we must accomplish.

7.2 - The leadership of this organization focuses on the future (proactive) rather than the past (reactive).

7.3 - The leadership of this organization demonstrates that it trusts me to do my job well.

7.4 - The "formal" leaders of this organization are also the "informal".

7.5 - The leadership of this organization is respected by the organization.

7.6 - The leadership of this organization is aware of what is going on "in the trenches".

7.7 - The leaders in this organization are genuinely people oriented.

7.8 - The leadership of this organization could be improved by:

Group: 8. Technology

8.1 - This organization has sufficient equipment (computers, word processors, calculators, etc.) To accomplish its mission.

8.2 - The money to purchase new equipment that we do need but do not have is reflected in our budget.

8.3 - This organization makes full use of the equipment it does have.

8.4 - The personnel in this office have sufficient knowledge to operate and maintain the equipment it does have.

8.5 - Most of our routine, repetitive work is automated.

8.6 - Our management information system (MIS) supports our organization rather than vice versa.

8.7 - If this organization does not have the technological support needed, it is available from another organization on a timely basis.

8.8 - The technological support and equipment we need to do a better job fall into these areas:

Group: 9. General

9.1 - The thing I like most about this organization is:

9.2 - The thing I like least about this organization is:

9.3 - If I were in charge of this organization, I would:

APPENDIX C: THE CCAWS/AGMS UNIT SELF-ASSESSMENT

Group: 1. Mission/Objectives

1.1 - To what extent do you understand the mission of the Project Office? **(Scale 1)**

1.2 - To what extent do you understand the objectives of your office? **(Scale 1)**

1.3 - I agree with/support the objectives of my office? **(Scale 2)**

1.4 - To what extent does the work actually performed support your office's stated objectives? **(Scale 1)**

Group: 2. Task Requirements

2.1 - I know what tasks I am responsible for accomplishing. **(Scale 2)**

2.2 - To what extent are your assigned task deadlines reasonable? **(Scale 1)**

2.3 - To what extent does the accomplishment of your duties depend on input from other people? **(Scale 1)**

2.4 - To what extent are you able to plan your activities for the following week? **(Scale 1)**

2.5 - To what extent do your activities occur as you have them planned? **(Scale 1)**

2.6 - I have sufficient authority to accomplish my assigned tasks. **(Scale 2)**

2.7 - To what extent do the procedures in your office hinder productivity? **(Scale 1)**

2.8 - Task accomplishment in my office could be improved by: **(open)**

Group: 3. Structure

3.1 - To what extent does the your office's present structure (the way people are divided up to do work) facilitate task accomplishment? **(Scale 1)**

3.2 - To what extent does the Project Office's present structure facilitate the flow of information? **(Scale 1)**

3.3 - The informal work structure in our office complements the established formal structure. **(Scale 2)**

3.4 - To what extent are your individual responsibilities defined? **(Scale 1)**

3.5 - To what extent is the accountability for final products clear? **(Scale 1)**

3.6 - To what extent are you provided the necessary resources to accomplish the tasks for which you are responsible? **(Scale 1)**

3.7 - I have the necessary authority to accomplish the tasks for which I am responsible? **(Scale 2)**

3.8 - To what extent are there barriers to the lateral flow of information in the Project Office? **(Scale 1)**

3.9 - To what extent do you receive the information necessary to perform your job? **(Scale 1)**

3.10 - To what extent do the policies in your office hinder mission accomplishment? **(Scale 1)**

3.11 - The way we are divided up to do things and the procedures we follow could be improved by: **(open)**

Group: 4. People

4.1 - I have been adequately trained in the skills and knowledge necessary to accomplish my assigned tasks. **(Scale 2)**

4.2 - The people in my office clearly express their knowledge of and support for the office's objectives. **(Scale 2)**

4.3 - I understand how my work contributes to the overall organizational effort. **(Scale 2)**

4.4 - The people in our office are warm and friendly toward each other. **(Scale 2)**

4.5 - Our office is seen as a good place to work because its people are treated well. **(Scale 2)**

4.6 - To what extent does the structure of your office help people as they do their work. **(Scale 1)**

4.7 - The following things need to be done in order to improve the fit between the kind of people we now have and the kind we ought to have: **(open)**

Group: 5. Integrated Product Teams (IPTs)

5.1 - I am a member of a product oriented IPT. **(Scale 2)**

5.2 - Conflicts are openly resolved between members of the IPT. **(Scale 2)**

5.3 - To what extent do you understand the objectives of your IPT? **(Scale 1)**

5.4 - To what extent does your IPT include members representing all of the functional areas critical to the product's success? **(Scale 1)**

5.5 - To what extent do you feel the members of the IPT are focused on common objectives? **(Scale 1)**

5.6 - To what extent are members of the IPT held accountable for areas in which they are responsible? **(Scale 1)**

5.7 - I understand how my participation in the IPT relates to the accomplishment of its objectives. **(Scale 2)**

5.8 - The effectiveness of the IPT could be improved by: **(open)**

Group: 6. Processes

6.1 - Communication is good in our office. (i.e. the people know what is going on). **(Scale 2)**

6.2 - Coordination is good between offices within the Project Office. **(Scale 2)**

6.3 - To what extent are personal conflicts dealt with openly in your office? **(Scale 1)**

6.4 - To what extent are clear individual objectives established for each person in your office? **(Scale 1)**

6.5 - To what extent are personal conflicts managed constructively in your office? **(Scale 1)**

6.6 - To what extent are performance criteria established for each person in your office? **(Scale 1)**

6.7 - Decisions are made at the most appropriate level in my office. **(Scale 2)**

6.8 - To what extent do the formally established policies and procedures in your office match what people actually do? **(Scale 1)**

6.9 - To what extent do you understand which decisions you can make yourself and which ones must involve other people? **(Scale 1)**

6.10 - The informal power structure within our office complements the formal structure. **(Scale 2)**

6.11 - The processes use in our office (communication, decision making, conflict management, individual role clarification) could be improved by: **(open)**

Group: 7. Leadership

7.1 - To what extent does your immediate supervisor provide clear guidance on tasks that must be accomplished? **(Scale 1)**

7.2 - To what extent are the leaders in your office proactive (focused on the future) rather than reactive? **(Scale 1)**

7.3 - My immediate supervisor demonstrates that he/she trusts me to do my job well. **(Scale 2)**

7.4 - The informal leaders in my office complement the formal leadership. **(Scale 2)**

7.5 - To what extent do you respect the leaders in your office? **(Scale 1)**

7.6 - To what extent is your immediate supervisor aware of what is going on "in the trenches" of your Office? **(Scale 1)**

7.7 - My immediate supervisor is genuinely people oriented. **(Scale 2)**

7.8 - The leadership in our office could be more effective by: **(open)**

Group 8. Technology

8.1 - To what extent is the equipment in your office (computers, word processors, copiers, etc.) sufficient to accomplish its mission? **(Scale 1)**

8.2 - Our office makes full use of the equipment it does have. **(Scale 2)**

8.3 - To what extent does the basic approach to task accomplishment fit the required tasks and the resources available? **(Scale 1)**

8.4 - To what extent have you been trained in the proper use and maintenance of the equipment you need to perform your job? **(Scale 1)**

8.5 - To what extent is routine, repetitive work in your office automated? **(Scale 1)**

8.6 - The Management Information System (MIS) in the Project Office supports our office rather than vice versa. **(Scale 2)**

8.7 - The technology of the Project Office can be improved by: **(open)**

Group 9. Products/Services

9.1 - To what extent are the products/services delivered by your office designed to meet customer expectations? **(Scale 1)**

9.2 - Our office delivers professional products/ services to its customers. **(Scale 2)**

9.3 - To what extent is your office product/service oriented? **(Scale 1)**

9.4 - To what extent do the products/services delivered by your office require rework? **(Scale 1)**

9.5 - To what extent are there procedures in your office to ensure the output of quality products and services? **(Scale 1)**

9.6 - The products and services delivered by our office could be improved by: **(open)**

Group 10. Customer Satisfaction

10.1 - To what extent are you satisfied with the products you receive from other offices within the PMO? **(Scale 1)**

10.2 - To what extent are you satisfied with the services performed by other offices within the PMO? **(Scale 1)**

10.3 - To what extent do the products/services you receive from other offices within the PMO require rework? **(Scale 1)**

10.4 - To what extent does the accomplishment of your assigned tasks depend on the products/services you receive from other offices within the PMO? **(Scale 1)**

10.5 - In your opinion, which office(s) within the PMO provides quality products/services to its internal customers? **(Open)**

10.6 - In your opinion, which office(s) within the PMO provides poor products/services to its internal customers? **(Open)**

10.7 - My satisfaction with the products/services received from other offices within the PMO could be improved by: **(open)**

Group: 11. General

11.1 - The things I like most about working in my office are: **(open)**

11.2 - The things I like least about working in my office are: **(open)**

11.3 - If I were in charge of my office, section, branch, or division, I would: **(open)**

Response Scales

Scale 1	Value	Scale 2
Totally	◂ 6 ▸	Strongly Agree
Substantially	◂ 5 ▸	Agree
Reasonably	◂ 4 ▸	Slightly Agree
Moderately	◂ 3 ▸	Slightly Disagree
Barely	◂ 2 ▸	Disagree
None	◂ 1 ▸	Strongly Disagree
Don't Know	◂ 0 ▸	Don't Know

APPENDIX D: UNIT SELF-ASSESSMENT ITEM SURVEY

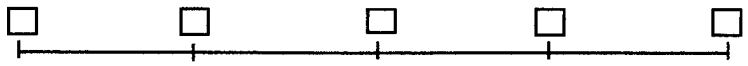
Respondent #: _____ Name: _____

Organization: Office:

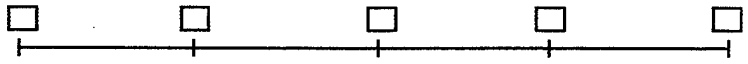
Position: _____

For each Item:

Is the wording:

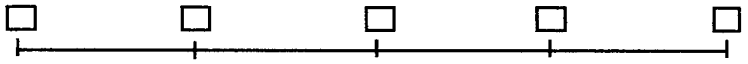


Ambiguous Clear



Wordy Concise

Is the content:

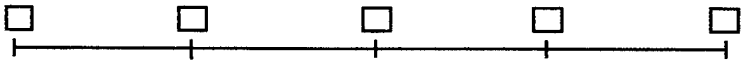


Confusing Understandable

Irrelevant Applicable

Offensive Suitable

Is the Scale:



Improper Appropriate

APPENDIX E: UNIT ASSESSMENT AND SOFTWARE SURVEY

Respondent #: _____ Name: _____

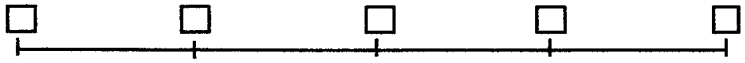
Organization: Office:

Position: _____

A. Unit Assessment:

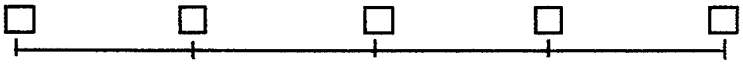
1. The instructions provided on how to complete the assessment are _____:

Confusing Clear



Incomplete Complete

2. The assessment itself is _____:

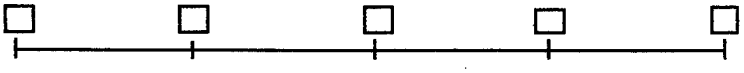


Too Short About Right Too Long

Incomplete Comprehensive

3. _____ of the assessment questions are _____ for a person at my level in the Project Office.

None Few Some Most All



Inappropriate Appropriate

4. What questions/areas do you feel are important indicators of program health that are not included in the assessment?

_____

_____

5. How long did it take you to complete the assessment?

_____ minutes.

6. Please, provide any General Comments you may have about the assessment.

_____

_____

_____

_____

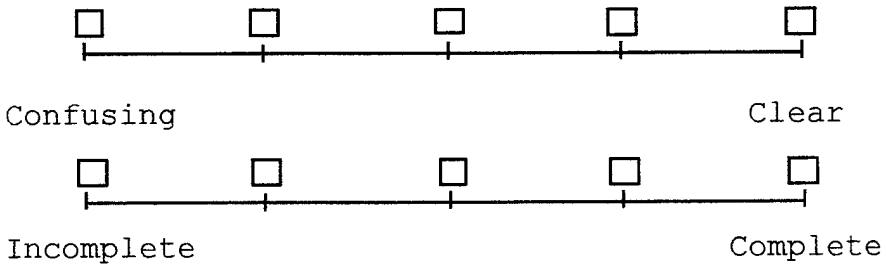
_____

_____

_____

B. Software:

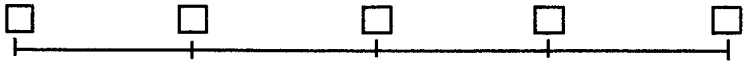
1. The instructions provided on how to use the software are:



2. Is the Microsoft Windows environment installed on your computer workstation?

Yes / No

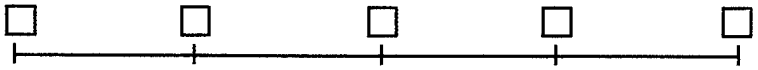
3. The attributes used in the assessment software (windows, push buttons, drag and drop, etc..) were _____ to me.



Unfamiliar Familiar

4. Compared to a "paper and pencil" assessment, the computerized assessment is:

Less time consuming More time consuming



Easier to complete Harder to complete

5. Did you encounter any difficulties using the software?

Yes / No

If yes, please describe the difficulties.

_____
_____
_____

_____

6. What, if any, improvements to the software would you suggest?

_____
_____

_____
_____

7. Please, provide any General Comments you may have about the software.

_____

APPENDIX F: UNIT SELF-ASSESSMENT ITEM SURVEY DATA

The data collected from Survey #2 concerning the effectiveness of the candidate self-assessment items to measure the program health and customer satisfaction of a project management office are summarized in this appendix. The items are listed as follows:

Table	Functional Area	Items
Table 7	Strategy	1.1 - 1.10
Table 8	Task	2.1 - 2.9
Table 9	Structure	3.1 - 3.12
Table 10	People	4.1 - 4.8
Table 11	Rewards	5.1 - 5.7
Table 12	Processes	6.1 - 6.9
Table 13	Leadership	7.1 - 7.8
Table 14	Technology	8.1 - 8.8
Table 15	General	9.1 - 9.3

Table 6: Directory of Survey #2 Data Tables.

Clear	Concise	Ambiguous	Relevant	Suitable	Scale	Item		
2.00	2.00	2.00	1.91	2.00	2.00	1.1	Mean	
0.00	0.00	0.00	0.59	0.00	0.00		Std. Dev	
100%	100%	100%	95.65%	100%	100%		%	
99.28%								
2.00	2.00	2.00	2.00	2.00	2.00	1.2	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev	
100%	100%	100%	100%	100%	100%		%	
100%								
1.96	2.00	1.93	1.89	2.00	2.00	1.3	Mean	
0.29	0.00	0.44	0.53	0.00	0.00		Std. Dev	
97.83%	100%	96.74%	94.57%	100%	100%		%	
98.18%								
2.00	2.00	1.91	2.00	2.00	2.00	1.4	Mean	
0.00	0.00	0.29	0.00	0.00	0.00		Std. Dev	
100%	100%	95.65%	100%	100%	100%		%	
99.64%								
2.00	2.00	2.00	2.00	2.00	2.00	1.5	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev	
100%	100%	100%	100%	100%	100%		%	
100%								

Item	Clear	Concise	Ambiguous	Relevant	Suitable	Scale
1.6	2.00	2.00	2.00	1.85	2.00	2.00
	0.00	0.00	0.00	0.73	0.00	0.00
	100%	100%	100%	92.39%	100%	100%
98.73%						
1.7	0.96	1.80	0.78	1.89	2.00	1.96
	1.60	0.78	1.75	0.53	0.00	0.29
	47.83%	90.22%	39.13%	94.57%	100%	97.83%
78%						
1.8	1.54	1.78	1.50	2.00	2.00	2.00
	1.22	0.92	1.31	0.00	0.00	0.00
	77.17%	88.04%	75.00%	100%	100%	100%
90.04%						
1.9	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
100%						
1.10	1.76	1.93	1.83	2.00	2.00	2.00
	0.71	0.44	0.61	0.00	0.00	0.00
	88.04%	96.74%	91.30%	100%	100%	100%
96.01%						

Table 7: Assessment Item Survey Data - Group 1 (Strategy)

Clear	Concise	Ambiguous	Relevant	Suitable	Scale	Item		
1.91	2.00	1.91	2.00	2.00	2.00	2.1	Mean	
0.59	0.00	0.59	0.00	0.00	0.00		Std. Dev.	
95.65%	100%	95.65%	100%	100%	100%		%	
98.55%								
2.00	2.00	2.00	2.00	2.00	1.85	2.2	Mean	
0.00	0.00	0.00	0.00	0.00	0.73		Std. Dev.	
100%	100%	100%	100%	100%	92.39%		%	
98.73%								
1.87	2.00	1.91	2.00	2.00	2.00	2.3	Mean	
0.62	0.00	0.59	0.00	0.00	0.00		Std. Dev.	
93.48%	100%	95.65%	100%	100%	100%		%	
98.19%								
1.91	2.00	1.96	2.00	2.00	1.93	2.4	Mean	
0.46	0.00	0.29	0.00	0.00	0.44		Std. Dev.	
95.65%	100%	97.83%	100%	100%	96.74%		%	
98.37%								
2.00	2.00	2.00	2.00	2.00	2.00	2.5	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev.	
100%	100%	100%	100%	100%	100%		%	
100%								

Item	Clear	Concise	Ambiguous	Relevant	Suitable	Scale
2.6	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
100%						
2.7	1.96	2.00	1.96	2.00	2.00	1.93
	0.29	0.00	0.15	0.00	0.00	0.44
	97.83%	100%	98.91%	100%	100%	96.74%
98.91%						
2.8	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
100%						
2.9	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
100%						

Table 8: Assessment Item Survey Data - Group 2 (Task)

Table 9: Assessment Item Survey Data - Group 3 (Structure)

Clear	Concise	Ambiguous	Relevant	Suitable	Scale	Item			Item	Clear	Concise	Ambiguous	Relevant	Suitable	Scale
1.87	2.00	2.00	2.00	2.00	2.00		Mean			2.00	2.00	2.00	2.00	2.00	2.00
0.65	0.00	0.00	0.00	0.00	0.00	3.1	Std. Dev		3.7	0.00	0.00	0.00	0.00	0.00	0.00
93.48%	100%	100%	100%	100%	100%		%			100%	100%	100%	100%	100%	100%
		98.91%								100%					
1.91	2.00	1.91	2.00	2.00	2.00		Mean			2.00	2.00	2.00	2.00	2.00	2.00
0.59	0.00	0.59	0.00	0.00	0.00	3.2	Std. Dev		3.8	0.00	0.00	0.00	0.00	0.00	0.00
95.65%	100%	95.65%	100%	100%	100%		%			100%	100%	100%	100%	100%	100%
		98.55%								100%					
1.93	2.00	1.87	2.00	2.00	2.00		Mean			1.91	2.00	1.96	2.00	2.00	2.00
0.44	0.00	0.62	0.00	0.00	0.00	3.3	Std. Dev		3.9	0.59	0.00	0.15	0.00	0.00	0.00
96.74%	100%	93.48%	100%	100%	100%		%			95.65%	100%	98.91%	100%	100%	100%
		98.37%								99.09%					
1.78	2.00	1.96	2.00	2.00	2.00		Mean			1.96	2.00	1.96	2.00	2.00	2.00
0.76	0.00	0.29	0.00	0.00	0.00	3.4	Std. Dev		3.10	0.29	0.00	0.29	0.00	0.00	0.00
89.13%	100%	97.83%	100%	100%	100%		%			97.83%	100%	97.83%	100%	100%	100%
		97.83%								99.28%					
1.89	2.00	1.89	2.00	2.00	2.00		Mean			2.00	2.00	2.00	2.00	2.00	2.00
0.53	0.00	0.53	0.00	0.00	0.00	3.5	Std. Dev		3.11	0.00	0.00	0.00	0.00	0.00	0.00
94.57%	100%	94.57%	100%	100%	100%		%			100%	100%	100%	100%	100%	100%
		98.19%								100%					
1.96	2.00	2.00	2.00	2.00	2.00		Mean			1.96	2.00	1.96	2.00	2.00	2.00
0.29	0.00	0.00	0.00	0.00	0.00	3.6	Std. Dev.		3.12	0.29	0.00	0.29	0.00	0.00	0.00
97.83%	100%	100%	100%	100%	100%		%			97.83%	100%	97.83%	100%	100%	100%
		99.64%								99.28%					

Clear	Concise	Ambiguous	Relevant	Suitable	Scale	Item		
2.00	2.00	2.00	2.00	2.00	2.00	4.1	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev	
100%	100%	100%	100%	100%	100%		%	
100%								
1.93	2.00	2.00	2.00	2.00	2.00	4.2	Mean	
0.44	0.00	0.00	0.00	0.00	0.00		Std. Dev	
96.74%	100%	100%	100%	100%	100%		%	
99.46%								
2.00	2.00	2.00	2.00	2.00	2.00	4.3	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev	
100%	100%	100%	100%	100%	100%		%	
100%								
2.00	2.00	2.00	2.00	2.00	2.00	4.4	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev	
100%	100%	100%	100%	100%	100%		%	
100%								

Item	Clear	Concise	Ambiguous	Relevant	Suitable	Scale
4.5	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
	100%					
4.6	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
	100%					
4.7	1.93	2.00	1.93	2.00	2.00	2.00
	0.44	0.00	0.44	0.00	0.00	0.00
	96.74%	100%	96.74%	100%	100%	100%
	98.91%					
4.8	2.00	2.00	2.00	1.91	2.00	2.00
	0.00	0.00	0.00	0.59	0.00	0.00
	100%	100%	100%	95.65%	100%	100%
	99.28%					

Table 10: Assessment Item Survey Data - Group 4 (People)

Table 11: Assessment Item Survey Data - Group 5 (Rewards)

Clear	Concise	Ambiguous	Relevant	Suitable	Scale	Item		
2.00	2.00	2.00	2.00	2.00	2.00	5.1	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev	
100%	100%	100%	100%	100%	100%		%	
100%								
2.00	2.00	2.00	2.00	2.00	2.00	5.2	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev	
100%	100%	100%	100%	100%	100%		%	
100%								
1.91	2.00	1.91	2.00	2.00	2.00	5.3	Mean	
0.59	0.00	0.59	0.00	0.00	0.00		Std. Dev	
95.65%	100%	95.65%	100%	100%	100%		%	
98.55%								
2.00	2.00	2.00	1.98	2.00	2.00	5.4	Mean	
0.00	0.00	0.00	0.15	0.00	0.00		Std. Dev	
100%	100%	100%	98.91%	100%	100%		%	
99.82%								

Item	Clear	Concise	Ambiguous	Relevant	Suitable	Scale
5.5	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
100%						
5.6	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
100%						
5.7	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
100%						

Clear	Concise	Ambiguous	Relevant	Suitable	Scale	Item		
2.00	2.00	2.00	2.00	2.00	2.00	6.1	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev.	
100%	100%	100%	100%	100%	100%		%	
100%								
1.91	2.00	2.00	2.00	2.00	2.00	6.2	Mean	
0.59	0.00	0.00	0.00	0.00	0.00		Std. Dev.	
95.65%	100%	100%	100%	100%	100%		%	
99.28%								
1.83	2.00	2.00	2.00	2.00	2.00	6.3	Mean	
0.71	0.00	0.00	0.00	0.00	0.00		Std. Dev.	
91.30%	100%	100%	100%	100%	100%		%	
98.55%								
1.96	2.00	2.00	2.00	2.00	1.93	6.4	Mean	
0.29	0.00	0.00	0.00	0.00	0.44		Std. Dev.	
97.83%	100%	100%	100%	100%	96.74%		%	
99.64%								
1.93	2.00	2.00	2.00	2.00	2.00	6.5	Mean	
0.44	0.00	0.00	0.00	0.00	0.00		Std. Dev.	
96.74%	100%	100%	100%	100%	100%		%	
99.46%								

Item	Clear	Concise	Ambiguous	Relevant	Suitable	Scale
6.6	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
	100%					
6.7	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
	100%					
6.8	1.91	2.00	2.00	2.00	2.00	2.00
	0.59	0.00	0.00	0.00	0.00	0.00
	95.65%	100%	100%	100%	100%	100%
	99.28%					
6.9	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
	100%					

Table 12: Assessment Item Survey Data - Group 6 (Processes)

Table 13: Assessment Item Survey Data - Group 7 (Leadership)

Clear	Concise	Ambiguous	Relevant	Suitable	Scale	Item
1.91	2.00	2.00	2.00	2.00	2.00	7.1
0.59	0.00	0.00	0.00	0.00	0.00	
95.65%	100%	100%	100%	100%	100%	
99.28%						
2.00	2.00	2.00	2.00	2.00	2.00	7.2
0.00	0.00	0.00	0.00	0.00	0.00	
100%	100%	100%	100%	100%	100%	
100%						
2.00	2.00	2.00	2.00	2.00	2.00	7.3
0.00	0.00	0.00	0.00	0.00	0.00	
100%	100%	100%	100%	100%	100%	
100%						
1.91	2.00	2.00	2.00	2.00	2.00	7.4
0..59	0.00	0.00	0.00	0.00	0.00	
95.65%	100%	100%	100%	100%	100%	
99.28%						

	Item	Clear	Concise	Ambiguous	Relevant	Suitable	Scale
Mean	7.5	2.00	2.00	2.00	2.00	2.00	2.00
Std. Dev		0.00	0.00	0.00	0.00	0.00	0.00
%		100%	100%	100%	100%	100%	100%
		100%					
Mean	7.6	2.00	2.00	2.00	2.00	2.00	2.00
Std. Dev		0.00	0.00	0.00	0.00	0.00	0.00
%		100%	100%	100%	100%	100%	100%
		100%					
Mean	7.7	2.00	2.00	2.00	2.00	2.00	2.00
Std. Dev		0.00	0.00	0.00	0.00	0.00	0.00
%		100%	100%	100%	100%	100%	100%
		100%					
Mean	7.8	2.00	2.00	2.00	2.00	2.00	2.00
Std. Dev		0.00	0.00	0.00	0.00	0.00	0.00
%		100%	100%	100%	100%	100%	100%
		100%					

Clear	Concise	Ambiguous	Relevant	Suitable	Scale	Item		
2.00	2.00	2.00	2.00	2.00	2.00	8.1	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev	
100%	100%	100%	100%	100%	100%		%	
100%								
2.00	2.00	2.00	2.00	2.00	2.00	8.2	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev	
100%	100%	100%	100%	100%	100%		%	
100%								
2.00	2.00	2.00	2.00	2.00	2.00	8.3	Mean	
0.00	0.00	0.00	0.00	0.00	0.00		Std. Dev	
100%	100%	100%	100%	100%	100%		%	
100%								
1.91	2.00	2.00	2.00	2.00	2.00	8.4	Mean	
0.59	0.00	0.00	0.00	0.00	0.00		Std. Dev	
95.65%	100%	100%	100%	100%	100%		%	
99.28%								

Item	Clear	Concise	Ambiguous	Relevant	Suitable	Scale
8.5	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
	100%					
8.6	1.96	2.00	2.00	2.00	2.00	2.00
	0.29	0.00	0.00	0.00	0.00	0.00
	97.83%	100%	100%	100%	100%	100%
	99.63%					
8.7	1.96	1.96	1.93	2.00	2.00	2.00
	0.29	0.29	0.44	0.00	0.00	0.00
	97.83%	97.83%	96.74%	100%	100%	100%
	99.28%					
8.8	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
	100%					

Table 14: Assessment Item Survey Data - Group 8 (Technology)

Table 15: Assessment Item Survey Data - Group 9 (General)

Clear	Concise	Ambiguous	Relevant	Suitable	Scale	Item
2.00	2.00	2.00	2.00	2.00	2.00	9.1
0.00	0.00	0.00	0.00	0.00	0.00	
100%	100%	100%	100%	100%	100%	
100%						
2.00	2.00	2.00	2.00	2.00	2.00	9.2
0.00	0.00	0.00	0.00	0.00	0.00	
100%	100%	100%	100%	100%	100%	
100%						

Mean	
Std. Dev	
%	
Mean	
Std. Dev	
%	

Item	Clear	Concise	Ambiguous	Relevant	Suitable	Scale
9.3	2.00	2.00	2.00	2.00	2.00	2.00
	0.00	0.00	0.00	0.00	0.00	0.00
	100%	100%	100%	100%	100%	100%
	100%					

APPENDIX G: QUALITATIVE RESPONSE SUMMARY: UNIT SELF-ASSESSMENT ITEM SURVEY

Item 1.1:

- Does not apply to secretary position.
- Too general. Reduce scope to appropriate level within the organization.

Item 1.2:

- Too general. Reduce scope to appropriate level within the organization.
- Change the word "objectives" to "vision".

Item 1.3:

- Too general. Reduce scope to appropriate level within the organization.
- Change the word "objectives" to "vision". (2)
- Irrelevant because these are fixed at higher levels. Possible to ask about sub-objectives that support these objectives. (2)

Item 1.4:

- Too general. Reduce scope to appropriate level within the organization.
- Irrelevant question, delete.
- A majority of the people will not know the goals of the PEO. (3)

Item 1.5:

- Too general. Reduce scope to appropriate level within the organization.
- Change the word "objectives" to "vision".

Item 1.6:

- Irrelevant question, delete.
- Not applicable to all job positions. (4)

Item 1.7:

- Change the words "objectives for mission accomplishment" to "vision".

- Environment and Demands are not clear. Question may need supporting questions preceding it to make it clear. (9)
- What "strategy", be specific.
- Reword: ...the PMO environment suitable to accomplish mission objectives...

Item 1.8:

- Irrelevant question, delete.
- Reword: Does the PMO have the resources necessary to accomplish its mission?
- Define "Availability of its resources". People, money, etc... (3)

Item 1.9:

- Change the word "objectives" to "vision".
- Remove the word "Stated" from the question. Possibly use goals/objectives.

Item 1.10:

- Change the word "strategy" to "strategy/vision".
- Define "Strategy". (5)
- Reword: How could the PMO better accomplish its mission?
- Look at asking what the PMO does well also.

Item 2.2:

- Scale: Reasonable/Moderate not clear for this question. Confuses the user. Look for better words. Suggest "little".
- Delete question (could be a grievance).
- Reword: as a statement. "Tasks are assigned". Use scale #2.

Item 2.3:

- Delete the word "Task".
- Wording. Approach from the viewpoint of unreasonable.
- Reword: Are your task deadlines reasonable most of the time (or) how much of the time? There is a certain amount of crisis management inherent in this business.

- Not specific. Find a way to eliminate crisis generated tasks. Maybe use the word normal or routine. (3)

Item 2.4:

- Reword as a statement. "Tasks are assigned..." Use scale #2.
- Change the word duties to tasks (consistent with group).
- Coordinated input is confusing.

Item 2.5:

- Reword: "Do you plan your activities..."

Item 2.7:

- "By who" delegated.

Item 2.9:

- Solicit both problems and solutions, also things working well. (2)
- Scale down to branch office. Cannot be answered accurately by most people in the organization as written.

Item 3.1:

- Too general. Reduce scope to appropriate level within the organization.
- Change the word "work" to "your assigned tasks".

Item 3.2:

- Type of flow is confusing (lateral or vertical).

Item 3.3:

- Who/What level of decision making does this question refer to? (2)

Item 3.4:

- Define "informal work structure". (2)
- Is this question referring to the Integrated Product Teams or the informal structure?
- Change structure to environment. Change the word "Formal" to "established PMO structure".

Item 3.5:

- Too general. Reduce scope to appropriate level within the organization.

Item 3.6:

- Define "final products". Product refers to the final deliverable by the PMO. Replace the word "product". (2)
- Personalize: Are you held accountable?

Item 3.7:

- Needs to be more direct.
- Too general. Reduce scope to appropriate level within the organization.

Item 3.8:

- Too general. Reduce scope to appropriate level within the organization.
- Assumes all people know the decision process.

Item 3.9:

- Define lateral (example- across functional areas). (3)

Item 3.10:

- Add "mission essential" or "important" information.
- Define "Chain of Command".

Item 3.11:

- Too general. Reduce scope to appropriate level within the organization.

Item 3.12:

- Not specific (how - at what level).
- Look at asking what the PMO does well also.

Item 4.2:

- Clearly "understand" and "support". This should be two separate questions.

Item 4.7:

- The word structure is confusing.

Item 4.8:

- Look at asking what the PMO does well also.

Item 5.1:

- Reword: drop the ending. Focus of the question should be on equity. Is the awards system equitable? The use of rank or tenure restricts the question. What about sex, race, etc... Use the word "performance" instead of "results".

Item 5.3:

- Address individual performance standards instead of overall office standards. (3)

Item 5.4:

- Suggest changing this question to read "How many times in the past 12 months has your immediate supervisor counseled you on your duty performance?". (2)
- Should refer to the office, not the PMO. (4)
- Use the word "job" instead of "duty".

Item 5.5:

- Add "Given the current constraints on the awards process",...

Item 5.6:

- Personalize to individual job. (Personal and professional environment motivate you to achieve.)

Item 5.7:

- Look at asking what the PMO does well also.

Item 6.1:

- Specify "official" communications.

Item 6.2:

- "Of What" (across functional areas?) (Does it achieve results?) Possibly two separate questions needed.

Item 6.3:

- Define type of conflict (Mission, Role, Personal?) (3)

Item 6.4:

- Delete. Irrelevant because each individual establishes his/her own objectives, based on an agreement between the individual and his/her immediate supervisor.
- Personalize: ask about the respondent. (3)

Item 6.7:

- Too general. Reduce scope to appropriate level within the organization.

Item 6.8:

- Assumes an informal power structure exists.

Item 6.9:

- Look at asking what the PMO does well also.

Item 7.1:

- Too general, needs to focus on the office leadership, first line supervisor, not the PMO. (3)

Item 7.2:

- Define "leadership" or reduce scope. (2)

Item 7.3:

- Too general. Reduce scope to appropriate level within the organization.

Item 7.4:

- Too general. Reduce scope to appropriate level within the organization.
- Do the IPTs (Integrated Product Teams) complement the chain of command?
- Assumes informal leadership exists.

Item 7.5:

- Too general. Reduce scope to appropriate level within the organization.

Item 7.6:

- Too general. Reduce scope to appropriate level within the organization.

Item 7.7:

- Too general. Reduce scope to appropriate level within the organization.

Item 7.8:

- Too general. Reduce scope to appropriate level within the organization.
- Look at asking what the PMO does well also.

Item 8.2:

- Irrelevant question, delete.

Item 8.3:

- Irrelevant question, delete.

Item 8.4:

- Irrelevant question, delete.
- Define the type of equipment "Is it talking about the product or the admin support equipment?"
- Possibly two questions being asked.

Item 8.5:

- Irrelevant question, delete.
- Add a question that focuses on the "Paperless environment".

Item 8.6:

- Define "MIS". (2)

Item 8.7:

- Define external support or delete. (2)

Item 8.8:

- Irrelevant question, delete.
- Define technical support. Is this the equipment itself or the tech spt group within the PMO?
- Look at asking what the PMO does well also.

Item 9.1:

- Look at asking what the PMO does well also.

Item 9.2:

- Look at asking what the PMO does well also.

Item 9.3:

- Look at asking what the PMO does well also.

Additions:

- Item in group 1: Does the Project Office's vision support our customers.
- Item in group 2: What causes you the most stress in your daily job?
- Item in group 3: Is there a proper balance between functional and product line roles (responsibilities)?
- Item in group 4: What makes the Integrated Product Teams (IPT) work? What needs to be improved?
- Item in group 7: Is the leadership/organization responsive to the needs of the customer?
- Item in group 8: Do you feel the Project office produces quality products, provides quality services?
- Item in group 8: Do you feel the Project office produces quality end items (HW/SW)?
- Item in group 8: How effectively do you feel the Project office communicates, works with, contractors? Other customers?
- Item: Focused on the quality of the counseling.
- Item: Do you know the goals of the PEO?
- Item: How satisfied are you with the support you receive from the other offices within the PMO?
- Item: To what extent is the awards system limited by the command (external to the PMO).

APPENDIX H: QUALITATIVE RESPONSE SUMMARY: UNIT SELF-ASSESSMENT AND SOFTWARE SURVEY

Unit Self-assessment:

Item A4: What questions/areas do you feel are important indicators of program health that are not included in the assessment?

- Relationships with matrix/external organizations (possibly under structure).
- Questions that focus on the project office's relationship with the PEO & MICOM.
- As noted during sample/walk through of the assessment-worker perceptions/knowledge of mission, goals, vision, and their role/position in achieving them. How is their worth defined, validated, and preserved. Do they make a difference? Are they part of the team , or not?
- Training - computer literate.
- Customer satisfaction related questions on internal customers.
- Participation in "off-site" activities. The turn out we have shows that a lot of employees don't want to participate.
- Leadership and technical.
- Add assessment of individual training.

Item A6: Please, provide any general comments you may have about the assessment instrument.

- The assessment was, with the exception of one question, clear and concise. Some of the questions were inappropriate for a support contractor like myself, but, in general, the assessment will be a useful tool for Project Management in assessing the level of success of their leadership.
- Much shorter and to the point than the previous survey.
- The assessment was quick, easy to understand, and appropriate to this project office.
- Very positive. I think the tool is solid.

- Asks the right kind of questions and not too many. Is not tiring and aggravating to take.
- Easy to use, painless.
- Minor modifications will result in an excellent program.
- I think the assessment is a good way to say what you feel or think.
- Upgrade notification of changes in processes/ procedures to ensure everyone needing to know knows in a timely manner, rather than "piece mill" notices.
- Make the questions in the assessment more personalized (level of organization (scope)).
- Good - it gave me some areas that I feel I could really improve on.
- Will be a good indicator of program office health.
- Well written, thorough, user friendly, applicable.
- It has good functionality. Easy to use and understand.
- Some of the questions were unclear, relative to the answer scale provided. I feel that this assessment could have some value if used properly.
- I thought it was a good assessment, with good questions.
- Well planned - thought out.
- The assessment needs to ask questions at the division/section level and not always refer to the project office as a whole.
- Is on the mark. Need good resume function to ensure people have plenty of time to answer word questions.
- The assessment addressed all disciplines.
- Delete rewards group. The rewards policy is rigid and cannot be changed from within.
- Delete technology group. Project is automated. Not worth the focus.
- Delete rewards and technology groups.
- Add groups that focus on products and services.
- Change Group 8 from Technology to Products.

- Task group (#2) Scale: moderately doesn't apply. All of the questions in section 4 should use scale #2.
- Add an area that measures the effect of external influences on the project office (PEO and MICOM).
- Add an area or some questions about how well the PMO work with the Contractor.
- Define "free" or "open" response in the instructions. Suggest "multiple choice" and "short answer". (2)
- Most of the questions are to general (encompassing the entire PMO). Most people will not have a clue at this level. Focus all questions down to the personal® or office level. The analysis of all responses will give an accurate picture of the entire office.
- Barely selection on scale #1 might be better as Rarely.
- Consider allowing decimal responses (in between two answers).
- Emphasize PMO internal answers.
- Don't care for open ended questions. Stress importance of these questions in instructions.
- I have yet to see the use of the words Value Added or Good Enough. Look at incorporating these phrases.
- Informal structure incorporates Integrated Product Teams (IPT).
- Personalize all questions.
- Open questions need to solicit positive comments as well. (2)
- Focus questions to the division, branch level.
- Stress confidentiality of information. Possibly incorporate a letter from the PM backing the project and stressing confidentiality.
- Asks nothing about our reason for being! Project offices supply **Products** (HW, SW, Tng & Maintenance equipment, and documentation to the soldier) and **Services** (technical support, field services, new material studies and analysis, service life surveillance, depot support, etc.. to soldiers in

the field, as well as to HQDA and TRADOC). The purpose of this survey is to see how well we are doing this job and whether we are on a path of continuous improvement.

- The words Reasonably and Moderately are difficult to differentiate between. Consider using alternate descriptions.
- Mix and match selective groups of questions.

Software:

Item B5 (part 2): Did you encounter any difficulties using the software? If yes, please describe the difficulties.

- No response

Item B6: What, if any, improvements to the software would you suggest?

- Streamline the installation process to eliminate the additional "install" and icon setup portions. This, however, is not a major problem. Also, you might look for a way to disable the comma key during text entry so as to eliminate the problems with comma delimited files.
- Add default buttons for the next screen. Add infinite scale for answers.
- Allow the user to back up to previous question.
- The wait between question groups needs to be eliminated.

Item B7: Please, provide any general comments you may have about the software.

- Software worked well - the windows were aesthetically pleasing. The arrow method for selecting responses was different, but easy and pleasant to use.
- The software was clear and concise. Made the assessment easier to answer in short period of time.
- I think that the software is great and I really enjoyed using it.
- Some of the bar scales should be the strongly agree scale.

- Instead of dragging the arrow to answer the questions, let me click on the answer and go.
- Easy to use. Good choice of color scheme - easy to read.
- Has a professional "look". Makes respondents have more confidence in results.
- User friendly. Well written. (4)
- Using the windows software is certainly a nice innovation. However, the facilitator is obligated to provide the general instructions repetitively, therefore, more time consuming when compared to all respondents at a single session. (Latter half of comment retracted when informed about networking the software and automating the instructions.)
- Good package.
- Add Senior Programmer to the position listing.
- Include "N/A" or "Other" in all lists.
- Unclear on "time in position" field. Does it refer to only to duty in current office or type of duty position?
- Need to be able to browse through questions both forward and backwards. (17)
- Must be careful when dragging arrow. If you release late, it could change your answer. Mention in instructions.
- Need to specify "Years" for time demographic fields. (5)
- Might be better to ask for DOB vice age.
- Scale might be easier to use (dragging arrow) if it was sideways on the screen.
- Management vs others is an important comparison for analysis.
- Difficult to switch between instructions and assessment.
- Need to find a way to have the program disregard the commas in the text fields so the user can type normally, else find a different way to export or analyze the data. (12)
- The year field must be defined. Is it the year you are taking the assessment? (2)

- Need to let the user know that it is the office symbol you are looking for in the office field.
- Combine GS and GM to GS/GM in the rank field.
- Is it possible to let the user select an answer that is in between those offered on the scale?
- Adjust the main screen to include AGMS and the PEO.
- Add "Logistics Management Specialist" to the position list. (2)
- Is the time in the organization field based on cumulative time in the organization (what about people that have been assigned there twice or more?) (2)
- Consider tailoring certain groups of questions to be viewed only by certain groups of people. For example Management Questions (do not appear to all others).
- Add the position Support Clerk to the position list.
- Does time in organization refer to Government or the PMO? (2)
- Add contract specialist to the position list.
- Add below high school in the education field.
- Add Branch Chief to the position list.
- Add years of college, other than degree to the education list. (3)
- Configure the program to enable clicking on the answers instead of dragging the arrow across the screen. (14)
- Add program analyst to the position list.
- Add SFAE-MSL-HD-P to the office listing (scrub the office list against the new wire diagram).
- Incorporate an alert message to remind users of their respondent number upon exiting the program from any place, except the end of the questionnaire.
- Add Electronics Engineer to the position list. (2)
- Add Systems Administrator to the position list.
- Consider two configurations: A Stand alone and a network version.

- Add General Engineer to the position list.
- Add Configuration Management Specialist to the position listing. (2)
- Consider adding ages greater than 65 to the age listing.
- Add Operations Research Analyst to the position listing.
- Are you asking for the percent of the office or the percent of the individual definitization?
- Add a Core/Matrix demographic field. (5)

APPENDIX I: PROJECT MANAGER INTERVIEW

Name: _____ Organization: _____

1. What do you intend to do with the results of the assessment?

_____
_____
_____
_____
_____

2. What types of analyses of the assessment data would be most beneficial to you?

_____
_____
_____
_____
_____

3. What types of outputs (presentations, reports, etc.) would be most beneficial to you?

_____
_____
_____
_____
_____

4. How do you define program health?

_____
_____
_____
_____
_____

5. In your opinion, is the assessment, as written, focused on the indicators that determine the program health of your organization?

_____
_____
_____
_____
_____

6. What areas of program health are not covered in the assessment?

_____
_____
_____
_____
_____

7. At what level(s) do you intend to conduct this assessment at in the future?

8. Do you intend to benchmark your organization against other organizations in the future using this assessment? If yes, which organizations?

9. Does the Self-assessment package (assessment and software) provide you with the tools necessary to identify weaknesses in your organization and monitor their improvement?

APPENDIX J: QUALITATIVE RESPONSE SUMMARY: PROJECT MANAGER INTERVIEWS

Item 1. What do you intend to do with the results of the unit self-assessment?

- Establish baseline for comparison of future repetitive test responses for the purpose of recognizing trends and focusing on quality improvement.
- Evaluate the PMO. Establish trends in the PMO.
- Analyze the results to determine the health of the organization. Pinpoint areas to work on, such as communications, procedures, etc...

Item 2. What types of analyses of the assessment data would be most beneficial to you?

- Each category (mission, task, etc...) with actual results, ability to compare to historical data, trend analysis. Discuss accuracy and model sensitivities.
- Comparisons of demographically significant subsets of the PMO against the total population and against each other (i.e. each division/branch office against the overall scores, management against all others). Benchmark against previous years (five years total).
- Big three or four problem areas - what are they? And at what levels in the organization - senior leadership, mid-level managers, worker bees? Is age versus grade/level the biggest differentiation in the answers we get? Are "don't knows" a significant percentage of the responses?

Item 3. What types of outputs (presentations, reports, etc...) would be most beneficial to you?

- Statistics and bar charts. Carry up to five data samples (Current plus past four).
- Statistics and bar charts summarizing and comparing the data. Current year against previous years. Management against all others. Offices against offices and the total population. Percentage scored against possible. Not concerned with age, education level, or military versus civilian.
- Graphs of answers by rank, age, organization, and product. Trend charts - most people that thought "a" was screwed up also thought "b" was screwed up.

Item 4. How do you define program health?

- Success in fielding and supporting material to the soldier.
- Job getting done, people like the job, they have the tools they need, the future is reasonably clear, rewards are substantial for the deserving, people think the front office cares, people think they have authority without "mother may I", dead wood gone.

Item 5. In your opinion, is the assessment, as written, focused on the indicators that determine the program health of your organization?

- Not yet. Need to measure success of our ultimate products (material and services).
- For the most part. We have outside influences (PEO structure, MICOM, contractors) that aren't really addressed.

Item 6. What areas of program health are not covered in the assessment?

- Products and Services.
- Customer satisfaction, Integrated product Teams (IPT).
- Do the people think the program they are working on (i.e. ITAS, IBAS, etc...) are on track?

Item 7. At what level(s) do you intend to conduct this assessment at in the future?

- All levels in the PMO (100%). (2)
- 100% (verbal response extracted from initial guidance).

Item 8. Do you intend to benchmark your organization against other organizations in the future using this assessment? If yes, which organizations?

- All projects in the PEO, ultimately. Already done once, using inappropriate tool.
- Not concerned with benchmarking against other projects. Focus is on benchmarking against previous years (verbal response extracted from initial guidance).

- Not necessarily - only several other organizations use exactly the same survey.

Item 9. Does the Self-assessment package (assessment and software) provide you with the tools necessary to identify weaknesses in your organization and monitor their improvement?

- Yes.
- Depends on what the analyses look like. Too soon to tell.

APPENDIX K: UNIT FACILITATOR INTERVIEW

Name: _____ Organization: _____

1. Compared to the last assessment you facilitated, to what extent did the software change your role as facilitator? In what way(s)?

_____
_____
_____
_____
_____

2. Do you think you will be able to manage the data collection and analysis process once the software is installed on the organization's network and each respondent completes the assessment from their individual work stations?

_____
_____
_____
_____
_____

3. What difficulties, if any, do you expect to encounter?

_____
_____
_____
_____
_____

4. Do you think the software procedures for gathering, compiling, exporting, and analyzing data are easier or harder than doing these tasks manually? In what way?

_____
_____
_____
_____
_____

5. Are the instructions for manipulating data using the software complete? Understandable?

_____
_____
_____
_____
_____

6. Were you able to import the assessment output file into your current analysis program(s) to conduct an analysis on the assessment data? What difficulties, if any, did you encounter?

7. Which analysis program(s) do you intend to use with this data in the future?

8. What types of analyses do you intend to conduct on this data in the future?

9. What types of outputs (presentations, reports, etc..) do you intend to prepare using this data in the future?

10. Are the instructions for manipulating the assessment data using the software complete? Understandable?

APPENDIX L: QUALITATIVE RESPONSE SUMMARY: UNIT FACILITATOR INTERVIEWS

Item 1. Compared to the last assessment you facilitated, to what extent do you expect the software change your role as facilitator? In what way(s)?

- Facilitator much less involved in filling out the survey. Keeps facilitator bias out. Much better. More tailored to the PMO. Easier on facilitator.
- It will make the analysis of the data easier, especially if it is fully automated. It will, however, be difficult to manage who has or has not responded to the survey at any given time.

Item 2. Do you think you will be able to manage the data collection and analysis process once the software is installed on the organization's network and each respondent completes the assessment from their individual work stations?

- Should not be too difficult.
- No, it will be extremely difficult to manage who has or has not completed the survey based solely on the number of records in the database.

Item 3. What difficulties, if any, do you expect to encounter?

- Tailoring analyses to detect demographic differences.

Item 4. Do you think the software procedures for gathering, compiling, exporting, and analyzing data are easier or harder than doing these tasks manually? In what way?

- Should be easier than manual. Have not used or viewed the analysis sub-program.
- It will be much easier logistically. Also, the compiling and analysis of the data should be much easier on the facilitator.

Item 5. Are the instructions for manipulating data using the software complete? Understandable?

- The instructions were not complete at the time of testing.

Item 6. Are you familiar with the steps involved in importing a comma or tab delimited text output file into your current analysis program(s) to conduct an analysis on the assessment data? What difficulties, if any, did you encounter?

- No. (2)

Item 7. Which analysis program(s) do you intend to use with this data in the future?

- Microsoft Office
- Would wish the analysis be a plotting sub-routine. Don't want just raw data.
- MS Office is installed on our computers. Program written by the researcher would be fine.

Item 8. What types of analyses do you intend to conduct on this data in the future?

- Overall (general statistics). Historical comparison by item number to determine trends. Comparisons by demographic groups, if necessary, to identify, focus in, on problem areas.
- That is a decision for top management.

Item 9. What types of outputs (presentations, reports, etc..) do you intend to prepare using this data in the future?

- Would use plots to brief top management.
- Statistical tables and bar charts. Anything that will effectively demonstrate the areas that top management has said they want to see.

Item 10. Are the instructions for manipulating the assessment data using the software complete? Understandable?

- The instructions were not complete at the time of testing.

Item 11. How much control do you desire to have over the facilitator (DBASE, analysis functions)?

- Would like a fully automated, *canned*, analysis program.
- Would like both a *canned*, fully automatic, analysis program and the ability to generate additional queries from the database and plot them.

APPENDIX M: INSTRUCTIONS: THE CCAWS/AGMS UNIT SELF-ASSESSMENT

1. The CCAWS/AGMS Unit Self-assessment is composed of 77 items divided into eleven groups. There are two types of items used in the assessment: multiple choice and short answer. Multiple choice items are answered by placing the sliding arrow opposite the desired response from the selections provided. Each multiple choice item is rated on one of the following scales.

Scale 1	Value	Scale 2
Totally	◂ 6 ▸	Strongly Agree
Substantially	◂ 5 ▸	Agree
Reasonably	◂ 4 ▸	Slightly Agree
Moderately	◂ 3 ▸	Slightly Disagree
Barely	◂ 2 ▸	Disagree
None	◂ 1 ▸	Strongly Disagree
Don't Know	◂ 0 ▸	Don't Know

Note: "Don't Know" is not a neutral response.

2. The second type of items used are short answer items. The value of the assessment is largely dependent upon the quality of the responses to these items. These items are answered by typing your response into the yellow box provided.

3. Before you begin the assessment you will be asked to provide demographic information about yourself. This information is solicited solely to provide information for use in the analysis of the assessment items. This information is requested on a volunteer basis.

4. Instructions on the use of the assessment software are included as a separate document.

APPENDIX N: INSTRUCTIONS: THE CCAWS/AGMS UNIT SELF-ASSESSMENT SOFTWARE

1. General. The CCAWS/AGMS Unit Self-assessment software is a prototype application independently developed for the purpose of conducting the CCAWS/AGMS Unit Self-assessment.

2. System Requirements.

a. IBM or compatible computer system.
b. 386SX-25 or faster CPU.
c. 4MB RAM.
d. 7.5MB hard drive (free space).
e. MS DOS 5.0 or higher.
f. MS Windows 3.1 or higher.
g. MS Mouse or equivalent pointing device.
h. 640x480 resolution video driver or higher.

3. Software Installation. The following procedures are used to install the unit assessment software onto your computer system:

a. Ensure Microsoft Windows is running on your computer. **Note:** This program cannot run outside of the MS Windows environment.

b. Insert the disk labeled *Disk 1* into your 3.5" floppy disk drive.

c. From the *File* menu select *Run*.

d. Type the drive letter of your 3.5" floppy disk drive followed by *Setup.exe*, (example - A: Setup.exe), then press enter.

e. You will be asked if you are sure you want to install the unit assessment program onto your computer system. Select "Yes" if you wish to proceed with the installation. To terminate the installation, select *No* or *Cancel*.

f. You will be prompted to enter the drive letter or network volume ID to which you wish to install the unit assessment program files. Enter this information in the space provided.

g. When prompted, insert the requested discs into the 3.5" floppy disk drive, then press *OK*.

The unit self-assessment setup program creates a directory entitled *assess* under the root directory of the drive or network volume you indicated and then transfers the unit assessment program files to this directory. The setup program will then create a *Unit Self-assessment* program group and a *CCAWS/AGMS Unit Self-assessment* program item (icon) within the Windows Program Manager. Note: if installing this program on a Local Area Network (LAN), this procedure must be repeated manually at each workstation from which you wish to access to the assessment program. The procedure to accomplish this is:

1. Ensure MS Windows is running on the desired workstation.
2. From the *File* menu, choose *New*.
3. Select *Program Group*.
4. Type *Unit Self-Assessment* on the title line.
5. Press *OK*.
6. Repeat Step 2.
7. Select *Program Item*.
8. Press the *Browse* button.
9. Select the directory or volume ID in which you stored the assessment program files.
10. Select the *assess* directory.
11. Select the file entitled *assess.exe*.
12. Press *OK*.

4. Starting the Assessment Program. The unit assessment program is started by "double-clicking" the *CCAWS/AGMS Unit Self-Assessment* program icon with the left mouse button.

5. Beginning a New Assessment.

a. Start the Unit Assessment Program (Step 4).

b. Press the *Begin Assessment* button in the main program window.

c. Enter the appropriate demographic information in the spaces provided. **Note:** the demographic entries are fixed response items. To choose your response, click with your left mouse button on the arrow to the right of the space provided to reveal a drop-down listing of available responses. Scroll through the available responses by clicking on the up or down arrows to the right of the listing until you find the appropriate response. Select the response by clicking on it with the left mouse button.

d. Press the *Continue* button.

7. Conducting the Assessment. As stated in the CCAWS/AGMS Unit Self-assessment instructions (separate document), the assessment incorporates two types of assessment items: multiple choice and shot answer. The following procedures are used to respond to the types of items used in the assessment.

a. Multiple Choice. Multiple choice items asks a question, or provides a statement, to which there are a limited number of fixed responses. These items are accompanied by one of two scales (see CCAWS/AGMS Unit Self-assessment instructions) with a blue arrow to the right of the scale, positioned across from the *Don't Know* response. There are three methods of selecting the appropriate response to this type of question.

(1) Select the appropriate response using the mouse or pointing device.

(2) Drag the arrow up or down the scale using the mouse or pointing device until it is across from the desired response.

(3) Position the arrow across from the desired response by moving it up or down the scale using the arrow buttons on your keyboard.

Note: It is not necessary to move the arrow if the *Don't Know* response is appropriate.

b. Short Answer. Short answer items allow the respondent to input a "free", unrestricted response to the stated item. To answer this type of item, simply type the information into the yellow box provided.

c. Once you have answered each question press the *Continue* button located in the lower right-hand corner of each item window to go to the next item.

7. Exiting the program. The program can be exited in several ways.

a. Press the *Exit* button in the main program window. **Note:** this window only appears at the beginning and the end of the assessment process.

b. "Double-click" the minus sign located in the upper left-hand corner of any item window.

c. Choose *Quit* from the *Facilitator* menu (Facilitator only).

8. Resuming a Previous Assessment. The following procedures are used to resume a previous assessment.

a. Start the unit assessment program (Step 4).

b. Press the *Resume Assessment* button in the main program window.

c. Enter your Respondent Number in the upper box. **IMPORTANT! You must use the same respondent number you received when taking the initial assessment.** This number is provided to you when you exit the original assessment. If you cannot remember this number, return to the main program window and begin a new assessment.

d. Press *Tab*.

e. Enter the number that corresponds to the item group that you would like to begin (i.e. item group 4 = 4).

f. Enter the number that corresponds to the item that you would like to begin (i.e. item 3 = 3).

f. Press the *Resume* button.

g. Resume answering the remaining questions using the procedures in step 6.

9. Facilitator Functions.

1. Exporting the Data to MS Access for Analysis:

a. Start the unit assessment Program (Step 4).

b. Press the *Facilitator Functions* button in the main program window.

c. Enter the security password, then press enter.

d. Choose *Export* in the *Facilitator* menu.

Note: the unit self-assessment program exports the demographic and item data into a tab delimited text file. The file is entitled *trnsfr.txt* and is placed in the directory containing the unit assessment program files. The unit self-assessment program is designed to automatically launch MS Access, then import and format the data using this program. Users of database and analysis programs other than MS Access can import data from this file manually, according to the program's procedures.

2. Data Analysis. Calculations required to analyze the collected data are automatically performed as the data are imported into MS Access. To perform additional analyses on the data, refer to the MS Access users guide.

3. Presenting the Analyzed Data. The presentation function within the data storage, analysis, and presentation application is designed to automatically present the graph depicting the overall assessment results, by organization and year. The application, as delivered, is capable of presenting five separate levels of analyzed data. Each level contains greater detail than the previous level. To view each successive level of the analysis, simply press the push button provided that corresponds to the area in which you would like to focus. For example: The initial presentation screen provides an overall assessment, depicting the results of each unit within the database for each year the assessment has been taken. If you would like to view the CCAWS organization in more detail, you would depress the *CCAWS* button. If, however, you would like to compare each organization based on the 1995 results, you would press the *1995* button. This procedure is repeated at each succeeding level of analysis. Analyzed data

can be viewed with respect to each organization, office, demographic category, and year, or any combination of these areas. Copies of each presentation screen can be made by pressing the *print* button, located on each screen.

APPENDIX O: DATA SOURCE MATRIX

Research Question	Measure of Effectiveness	Data Requirement	Literature Review	Survey #2	Survey #3	Survey #4	Interviews	Software Instruction
A	A1	A1a			P		S	
	A2	A2a		P			S	
	A3	A3a			P		S	
		A3b			P		S	
	A4	A4a					P	
		A4b		P			S	
	A5	A5a		P	S			
B	B1	B1a					P	S
		B1b					P	S
	B2	B2a				P	S	
		B2b			S	P		
	B3	B3a				P	S	
	B4	B4a				P	S	
		B4b					P	

Table 16: Data Source Matrix.

Research Question	Measure of Effectiveness	Data Requirement	Literature Review	Survey #2	Survey #3	Survey #4	Interviews	Software Instruction
B	B5	B5a				P	S	
	B6	B6a					P	
		B6b					P	
C	C1	C1a						P
	C2	C2a					P	
	C3	C3a					P	
		C3b	S					P
		C3c	S					P
B	C4	C4a	S					P
	C5	C5a	S					P
		C5b	S					P

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